

JVC

SERVICE MANUAL

WIDE LCD PANEL TELEVISION

LT-15B60SJ, LT-15B60SW

InteriArt

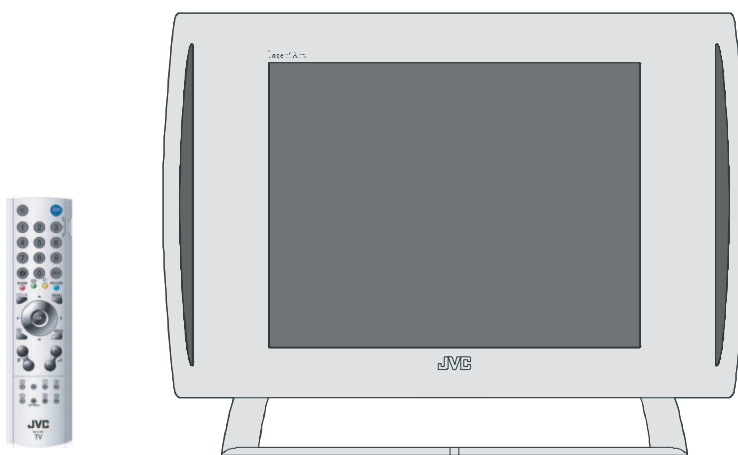


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SPECIFICATION

Items		Contents
Dimensions (W × H × D)		48.9cm × 35.3cm × 18.3cm [Included stand] 48.9cm × 30.4cm × 6.2cm [TV only]
Mass		7.5kg [Included stand] 6.0kg [TV only]
Power Input		DC12V AC220 ~ 240V 50Hz
Power Consumption		41W (Standby: 3.0W)
TV RF System		CCIR (B/G, DK, I, L)
Colour System		PAL / SECAM / NTSC 3.58/4.43 [EXT only]
Stereo System		A2 (B/G) / NICAM (B/G, I, L)
Receiving Frequency	VHF UHF	47 MHz - 470 MHz 470 MHz - 862 MHz
Intermediate Frequency	VIF SIF	38.9 MHz (B/G, I, L) 33.4 MHz (5.5MHz : B/G) 32.9 MHz (6.0MHz : I) 32.4 MHz (6.5MHz : L)
Colour Sub Carrier Frequency	PAL SECAM NTSC	4.43 MHz 4.40625 MHz / 4.25MHz 3.58 MHz / 4.43 MHz
Teletext System		FLOF (Fastext level 2.5), WST(World Standard system) TOP (German system)
LCD panel		15V-inch (4 : 3)
Screen Size		Diagonal : 38.1cm (H: 30.4cm × V: 22.8cm)
Display Pixels		Horizontal : 1024 dots × Vertical : 768 dots (XGA)
Audio Power Output		3W + 3W(10% THD)
Speaker		3.3cm × 10.5cm × 2
Aerial terminal (VHF/UHF)		F-type connector, 75Ω unbalanced, coaxial
EXT-1 (Input / Output)		21-pin Euro connector (SCART socket) × 1
EXT-2 (Input)	S-Video Video Audio	Mini-DIN 4 pin × 1 Y: 1V (p-p), Positive (Negative sync provided), 75 Ω C: 0.286V (p-p) (Burst signal), 75 Ω 1V (p-p), Positive (Negative sync provided), 75 Ω, RCA pin jack × 1 500mV (rms), High impedance, RCA pin jack × 2
PC (RGB) Input		D-sub 15pin × 1 R/G/B : 0.7V (p-p), 75Ω HD / VD : 1V (p-p) to 5V (p-p), high impedance < Available signal > Horizontal : 30kHz - 57kHz Vertical : 50Hz - 72Hz [Resolution : 640 pixels × 480 pixels(VGA), 800 pixels × 600 pixels(SVGA), 1024 pixels × 768 pixels(XGA)]
PC AUDIO input		3.5mm stereo mini jack × 1
Headphone		3.5mm stereo mini jack × 1
Remote Control Unit		RM-C1861 (AA/R6 dry cell battery × 2)

Design & specifications are subject to change without notice.

SECTION 1

PRECAUTION

1.1 SAFETY PRECAUTIONS [EXCEPT FOR UK]

- (1) The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
- (2) Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
- (3) Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (Δ) on the parts list in Service manual.** The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.
- (4) **Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.**
Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (\perp) side GND, the ISOLATED (NEUTRAL) : (\equiv) side GND and EARTH : (\oplus) side GND.
Don't short between the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND and never measure the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND at the same time with a measuring apparatus (oscilloscope etc.). If above note will not be kept, a fuse or any parts will be broken.
- (5) When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.

(6) Isolation Check (Safety for Electrical Shock Hazard)

After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screw heads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

a) Dielectric Strength Test

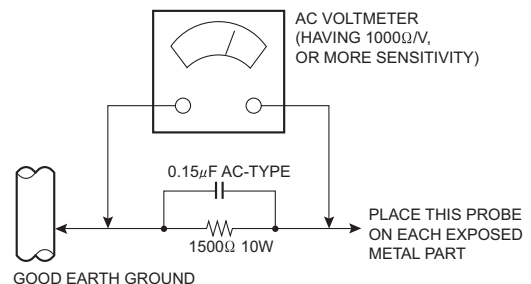
The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 3000V AC (r.m.s.) for a period of one second. (. . . Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.) This method of test requires a test equipment not generally found in the service trade.

b) Leakage Current Check


Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.). However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

Alternate Check Method

Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 Ω per volt or more sensitivity in the following manner. Connect a 1500 Ω 10W resistor paralleled by a 0.15 μ F AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.). However, in tropical area, this must not exceed 0.3V AC (r.m.s.). This corresponds to 0.2mA AC (r.m.s.).



1.2 SAFETY PRECAUTIONS [FOR UK]

- (1) The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
- (2) Alterations of the design or circuitry of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
- (3) Many electrical and mechanical parts in the product have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessary be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by () on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the Parts List of Service Manual may cause shock, fire, or other hazards.
- (4) The leads in the products are routed and dressed with ties, clamps, tubing's, barriers and the like to be separated from live parts, high temperature parts, moving parts and / or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.

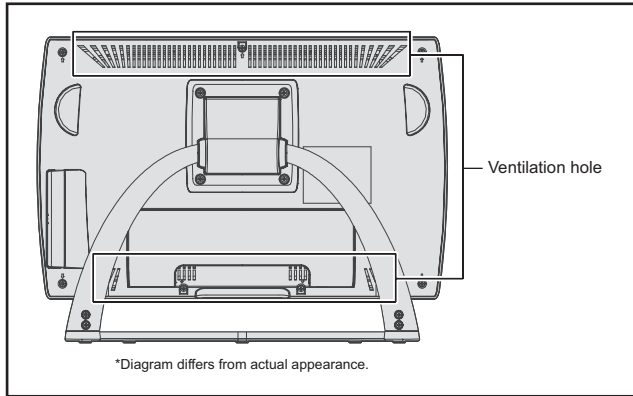
WARNING

- (1) The equipment has been designed and manufactured to meet international safety standards.
- (2) It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
- (3) Repairs must be made in accordance with the relevant safety standards.
- (4) It is essential that safety critical components are replaced by approved parts.
- (5) If mains voltage selector is provided, check setting for local voltage.

1.3 INSTALLATION

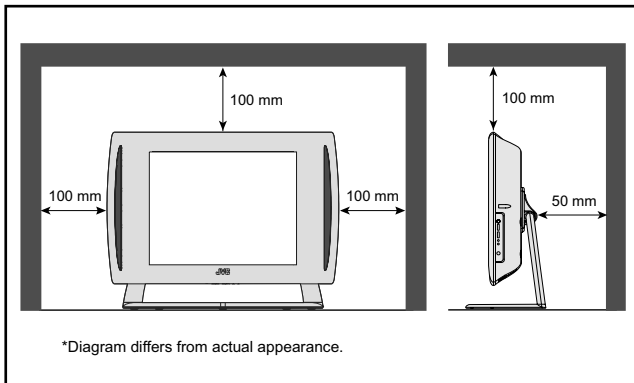
1.3.1 HEAT DISSIPATION

If the heat dissipation vent behind this unit is blocked, cooling efficiency may deteriorate and temperature inside the unit will rise. The temperature sensor that protects the unit will be activated when internal temperature exceeds the pre-determined level and power will be turned off automatically. Therefore, please make sure pay attention not to block the heat dissipation vent as well as the ventilation outlet behind the unit and ensure that there is room for ventilation around it.



1.3.2 INSTALLATION REQUIREMENTS

Ensure that the minimal distance is maintained, as specified below, between the unit with and the surrounding walls, as well as the floor etc. Install the unit on stable flooring or stands. Take precautionary measures to prevent the unit from tipping in order to protect against accidents and earthquakes.



1.3.3 NOTES ON HANDLING

(1) WHEN TAKING UNIT OUT OF A PACKING CASE

When taking the unit out of a packing case, do not grasp the upper part of the unit. If you take the unit out while grasping the upper part, the LCD PANEL may be damaged because of a pressure. Instead of grasping the upper part, put your hands on the lower backside or sides of the unit.

(2) AS FOR PRESSING OR TOUCHING A SPEAKER

Be careful not to press the opening of the speaker in the lower part of the unit and around them since the decorative sheet on the surface of the openings may be deformed.

1.4 HANDLING LCD PANEL

1.4.1 PRECAUTIONS FOR TRANSPORTATION

When transporting the unit, pressure exerted on the internal LCD panel due to improper handling (such as tossing and dropping) may cause damages even when the unit is carefully packed. To prevent accidents from occurring during transportation, pay careful attention before delivery, such as through explaining the handling instructions to transporters.

Ensure that the following requirements are met during transportation, as the LCD panel of this unit is made of glass and therefore fragile:

- (1) **USE A SPECIAL PACKING CASE FOR THE LCD PANEL**
When transporting the LCD panel of the unit, use a special packing case (packing materials). A special packing case is used when a LCD panel is supplied as a service spare part.
- (2) **ATTACH PROTECTION SHEET TO THE FRONT**
Since the front (display part) of the panel is vulnerable, attach the protection sheet to the front of the LCD panel before transportation. Protection sheet is used when a LCD panel is supplied as a service spare part.
- (3) **AVOID VIBRATIONS AND IMPACTS**
The unit may be broken if it is toppled sideways even when properly packed. Continuous vibration may shift the gap of the panel, and the unit may not be able to display images properly. Ensure that the unit is carried by at least 2 persons and pay careful attention not to exert any vibration or impact on it.
- (4) **DO NOT PLACE EQUIPMENT HORIZONTALLY**
Ensure that it is placed upright and not horizontally during transportation and storage as the LCD panel is very vulnerable to lateral impacts and may break. During transportation, ensure that the unit is loaded along the traveling direction of the vehicle, and avoid stacking them on one another. For storage, ensure that they are stacked in 2 layers or less even when placed upright.

1.4.2 OPTICAL FILTER (ON THE FRONT OF THE LCD PANEL)

- (1) Avoid placing the unit under direct sunlight over a prolonged period of time. This may cause the optical filter to deteriorate in quality and COLOUR.
- (2) Clean the filter surface by wiping it softly and lightly with a soft and lightly fuzz cloth (such as outing flannel).
- (3) Do not use solvents such as benzene or thinner to wipe the filter surface. This may cause the filter to deteriorate in quality or the coating on the surface to come off. When cleaning the filter, usually use the neutral detergent diluted with water. When cleaning the dirty filter, use water-diluted ethanol.
- (4) Since the filter surface is fragile, do not scratch or hit it with hard materials. Be careful enough not to touch the front surface, especially when taking the unit out of the packing case or during transportation.

1.4.3 PRECAUTIONS FOR REPLACEMENT OF EXTERIOR PARTS

Take note of the following when replacing exterior parts (REAR COVER, FRONT PANEL, etc.):

- (1) Do not exert pressure on the front of the LCD panel (filter surface). It may cause irregular COLOUR.
- (2) Pay careful attention not to scratch or stain the front of the LCD panel (filter surface) with hands.
- (3) When replacing exterior parts, the front (LCD panel) should be placed facing downward. Place a mat, etc. underneath to avoid causing scratches to the front (filter surface).

SECTION 2

SPECIFIC SERVICE INSTRUCTIONS

2.1 FEATURES

ZOOM

This function can change the screen size according to the picture aspect ratio.

COLOUR SYSTEM

If the picture is not clear or no colour appears, change the current colour system to another colour system.

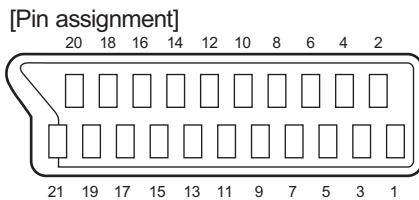
OFF TIMER

This function can set the TV to automatically turn off after a set time.

2.2 21-PIN EURO CONNECTOR (SCART) : EXT-1

Pin No.	Signal designation	Matching value	EXT-1
1	AUDIO R output	500mV(rms) (Nominal),, Low impedance	Used (TV OUT)
2	AUDIO R input	500mV(rms) (Nominal),, High impedance	Used (R1)
3	AUDIO L output	500mV(rms) (Nominal),, Low impedance	Used (TV OUT)
4	AUDIO GND		Used
5	GND (B)		Used
6	AUDIO L input	500mV(rms) (Nominal),, High impedance	Used (L1)
7	B input	700mV _(B-W) , 75Ω	Used
8	FUNCTION SW (SLOW SW)	Low : 0V-3V High : 8V-12V, High impedance	Used
9	GND (G)		Used
10	SCL / T-V LINK		Not used
11	G input	700mV _(B-W) , 75Ω	Used
12	SDA		Not used
13	GND (R)		Used
14	GND (YS)		Used
15	R / C input	R : 700mV _(B-W) , 75Ω C : 300mV _(P-P) , 75Ω	Used (R)
16	Ys input (FAST SW)	Low : 0V-0.4V, High : 1V-3V, 75Ω	Used
17	GND (VIDEO output)		Used
18	GND (VIDEO input)		Used
19	VIDEO output	1V _(P-P) (Negative sync), 75Ω	Used (TV OUT)
20	VIDEO / Y input	1V _(P-P) (Negative sync), 75Ω	Used
21	COMMON GND		Used

(P-P= Peak to Peak, B-W= Blanking to white peak)



2.3 TECHNICAL INFORMATION

2.3.1 LCD PANEL

This unit uses the flat type panel LCD (Liquid Crystal Display) panel that occupies as little space as possible, instead of the conventional CRT (Cathode Ray Tube), as a display unit.

Since the unit has the two polarizing filter that are at right angles to each other, the unit adopts "normally black" mode, where light does not pass through the polarizing filter and the screen is black when no voltage is applied to the liquid crystals.

2.3.1.1 SPECIFICATIONS

The following table shows the specifications of this unit.

Item	Specifications	Remarks
Displayed colour	16777216 colours	256 colours for R, G, and B
Brightness	450cd/m ²	
Contrast ratio	400: 1	
Response time	25ms	
View angle	Horizontally: 176°, Vertically: 176°	

2.3.1.2 PIXEL FAULT

There are three pixel faults - bright fault , dark fault and flicker fault - that are respectively defined as follows.

■ BRIGHT FAULT

In this pixel fault, a cell that should not light originally is lighting on and off.

For checking this pixel fault, input ALL BLACK SCREEN and find out the cell that is lighting on and off.

■ DARK FAULT

In this pixel fault, a cell that should light originally is not lighting or lighting with the brightness twice as brighter as originally lighting.

For checking this pixel fault, input 100% of each R/G/B colour and find out the cell that is not lighting.

■ FLICKER FAULT

In the pixel fault, a cell that should light originally or not light originally is flashing on and off.

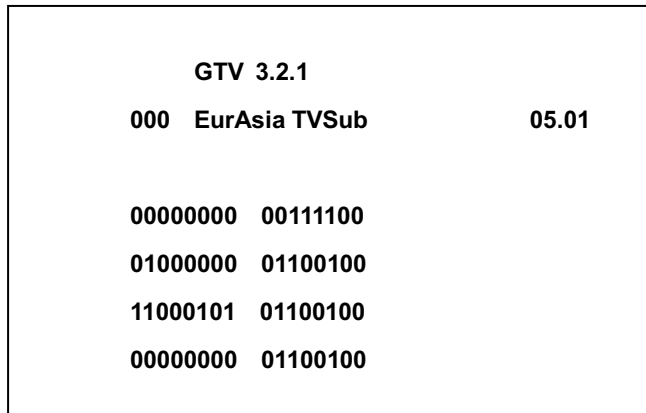
For checking this pixel fault, input ALL BLACK SCREEN signal or 100% of each RGB colour and find out the cell that is flashing on and off.

2.4 BASIC OPERATION OF UOCIII SERVICE MODE

2.4.1 HOW TO ENTER THE UOCIII SERVICE MODE

- (1) Press **[MENU]** key.
- (2) Press the **[4]**, **[7]**, **[2]** and **[5]** key, and UOCIII SERVICE MODE screen will be displayed.

UOCIII SERVICE MODE SCREEN



2.4.2 HOW TO EXIT THE UOCIII SERVICE MODE

Press **[MENU]** key to exit the UOCIII SERVICE MODE.

2.4.3 CHANGE AND MEMORY OF SETTING VALUE

■ SELECTION OF SETTING MENU & ITEM

- **[P +/-]** key.

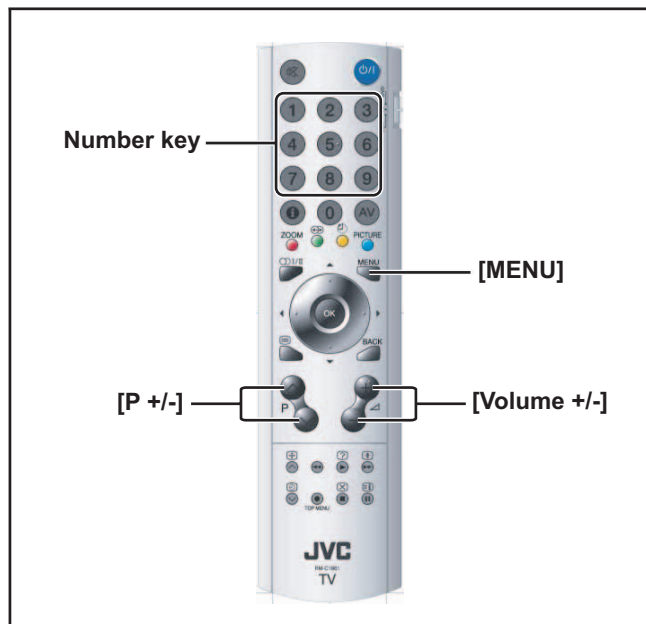
■ CHANGE OF SETTING VALUE(DATA)

- **[Volume +/-]** key.

■ MEMORY OF SETTING VALUE(DATA)

The setting value will be stored automatically when release the REMOTE CONTROL UNIT keys.

2.4.4 UOCIII SERVICE MODE SELECT KEY LOCATION



2.4.5 UOCIII SERVICE MODE SETTING ITEMS

Item No.	Setting items	Function	Setting value
000	EurAsia TVSub		05.01
001	Init TV	Sets the UOC default values and turns the tv to Stdbby	0
002	ISP Mode	Sets the TV into ISP state.	0
003	DCXO	DCXO crystal alignment	70
004	DCXO Auto	Automatic DCXO frequency alignment. When it is set to 1; UOC automatically calculates DCXO values and writes it to item number 3.	0
005	Rotation		31
006	Hor. Shift		32
007	HBL		0
008	WBF		4
009	WBR		8
010	WSS	WSS (Wide Screen Sigan-ling) enable	1
011	Gld-SCART		1
012	Col Fe	Color Saturation adjustment for RF input	32
013	Col AV1	Color Saturation adjustment for Scart CVBS input	32
014	Col AV1S		32
015	Col AV2	Color Saturation adjustment for AV CVBS input	32
016	Col AV2S	Color Saturation adjustment for for SVHS S-video input	32
017	BLOR		32
018	BLOG		32
019	RGB		14
020	YSECAM	"Y delay" setting. (SECAM) (0-15)	8
021	YNTSC	"Y delay" setting. (NTSC) (0-15)	8
022	YPAL	"Y delay" setting. (PAL) (0-15)	8
023	YAV1	"Y delay" setting. (SCART) (0-15)	4
024	YAV2	"Y delay" setting. (FAV) (0-15)	4
025	YSVHS1	"Y delay" setting. (0-15)	4
026	YSVHS2	"Y delay" setting. (S-Video) (0-15)	4
027	ACL		0
028	MUS		0
029	PWL		8
030	CB		0
031	BPS		0
032	FCO		0
033	PeakFreqPAL443		1
034	PeakFreqPALM		1
035	PeakFreqPALN		1
036	PeakFreqNTSC443		1

Item No.	Setting items	Function	Setting value
037	PeakFreqNTSCM		1
038	PeakFreqSECAM		1
039	PeakFreqAV		1
040	Blackstretch		1
041	Bluestretch		0
042	Whitestretch		0
043	Transfer Rato		1
044	PeakRatioOvShot		2
045	Tint NTSC		31
046	OSO		0
047	FSL		0
048	HP2		0
049	SoftClipLevel		0
050	OP AUDIO CONFIG		2
051	OP BILING		1
052	OP HP		1
053	OP EQUAL		1
054	OP DOLBY		0
055	OP TRUSUR		0
056	OP DUB DBE		0
057	OP BBE		0
058	AVL-LEV	AVL Level setting	1
059	AVL-WGT	AVL Weight setting	1
060	AVL-MOD	AVL Response Time setting	3
061	AVLE	AVL enable/disable	1
062	LOUD-NA		5
063	LOUD-CH		1
064	BBE-CONT		7
065	BBE-PROC		7
066	OP CLIP		0
067	DEC-LEV	FM German Str. Prescale setting	23
068	MONO-LEV	FM Mono Prescale setting	23
069	NIC-LEV	Nicam Str. Prescale setting	17
070	ADC-AM-L	AM Mono Prescale setting	21
071	ADC-AV-L	Scart/Line in Prescale setting	18
072	BGSCAL DEC		0
073	BGSCAL MONO		0
074	BGSCAL NIC		0
075	BGSCAL SAP		0
076	MSCAL DEC		0
077	MSCAL MONO		0
078	MSCAL NIC		0
079	MSCAL SAP		0
080	LSCAL DEC		0
081	LSCAL MONO		0

Item No.	Setting items	Function	Setting value
082	LSCAL NIC		0
083	LSCAL SAP		0
084	E2D		0
085	FFI		0
086	CMUTE		1
087	PA-BA-VO		31
088	PA-TR-VO		15
089	PA-LM-VO		1
090	PA-ST-VO		5
091	PA-LO-VO		0
092	PA-B1-VO		21
093	PA-B2-VO		50
094	PA-B3-VO		55
095	PA-B4-VO		45
096	PA-B5-VO		34
097	PA-BA-MU		34
098	PA-TR-MU		39
099	PA-LM-MU		1
100	PA-ST-MU		5
101	PA-LO-MU		1
102	PA-B1-MU		52
103	PA-B2-MU		47
104	PA-B3-MU		29
105	PA-B4-MU		29
106	PA-B5-MU		45
107	PA-BA-TH		36
108	PA-TR-TH		34
109	PA-LM-TH		1
110	PA-ST-TH		5
111	PA-LO-TH		0
112	PA-B1-TH		47
113	PA-B2-TH		45
114	PA-B3-TH		42
115	PA-B4-TH		45
116	PA-B5-TH		42
117	AGC Speed	AGC Speed setting	1
118	AGC Take over	AGC setting	27
119	OIF	IF Demodulator Offset	32
120	IF	IF Frequency	2
121	SVO		0
122	GD		1
123	BPB		0
124	BPB2		0
125	RGB-IN		1
126	DVD1-IN		0

Item No.	Setting items	Function	Setting value
127	AV2-IN		1
128	DVD2-IN		0
129	AV1S-IN		0
130	AV1D-IN		0
131	AV2S-IN		1
132	CBVS-OUT		1
133	INCL-AV		0
134	TXT-ON		1
135	TXT-SPLIT		1
136	TXT-H-POS		11
137	TIM-REM		1
138	TIM-SLP		1
139	TIM-SW		1
140	TIM-OFF		1
141	TIM-SKP		1
142	TIM-RT		1
143	FM Radio		1
144	PWR-SAVING		1
145	PWR-PERF		3
146	PWR-REST		0
147	PWR-ONKEY		1
148	Factory Mode		0
149	CombFil	Combfilter enable/disable	1
150	BlueBlackNoMute		0
151	ATS		1
152	EVG		0
153	DFL		0
154	XDT		0
155	AKB		1
156	OSVE		0
157	CL		10
158	LCD-BRT	UOC Brightness	36
159	LCD-CON	UOC Contrast	32
160	LCD-CON-FE	RF Frontend Contrast adjust.	30
161	LCD-CON-AV1	Scart CVBS Contrast adjust.	32
162	LCD-CON-AV1S		32
163	LCD-CON-AV2	AV CVBS Contrast adjust.	32
164	LCD-CON-AV2S	S-Video input Contrast adjust.	32
165	RBL		0
166	EGL		0
167	LPG		1
168	PGR	UOC Red Contrast	32
169	PGG-CVBS	UOC Green Contrast for CVBS input	32
170	PGG-RGB	UOC Green Contrast for RGB input	34
171	PGB	UOC Blue Contrast	32

2.5 BASIC OPERATION OF PW SERVICE MODE

2.5.1 HOW TO ENTER THE PW SERVICE MODE

- (1) Press [MENU] key.
- (2) Press the [4], [7], [2] and [6] key, and PW SERVICE MODE screen will be displayed.

2.5.2 HOW TO EXIT THE PW SERVICE MODE

Press [MENU] key to exit the PW SERVICE MODE.

2.5.3 CHANGE AND MEMORY OF SETTING VALUE

■ SELECTION OF SETTING MENU & ITEM

- [FUNCTION ▲/▼] and [FUNCTION ◀/▶] key.

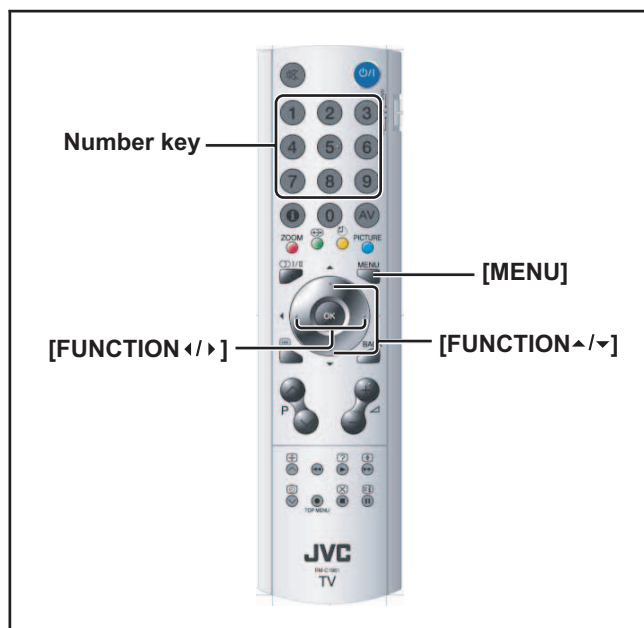
■ CHANGE OF SETTING VALUE(DATA)

- [FUNCTION ◀/▶] key.

■ MEMORY OF SETTING VALUE(DATA)

The setting value will be stored automatically when release the REMOTE CONTROL UNIT keys.

2.5.4 PW SERVICE MODE SELECT KEY LOCATION



2.5.5 PW SERVICE MODE SETTING ITEMS

Setting menu	Setting items
Submenu 1	UOC Hposition
	ADC_Calibration
	UOC_Calibration
Submenu 2	Init NVM
	Initial APS
Submenu 3	Country
	Language
	Menu Background
	Remote Control

SECTION 3

DISASSEMBLY

3.1 DISASSEMBLY PROCEDURE

NOTE:

- Make sure that the power cord is disconnected from the outlet.
- Pay special attention not to break or damage the parts.
- When removing each board, remove the connectors as required.
- Taking notes of the connecting points (connector numbers) makes service procedure manageable.
- Make sure that there is no bent or stain on the connectors before inserting, and firmly insert the connectors.

3.1.1 REMOVING THE FOOT ASSEMBLY

- (1) Remove the HINGE COVER.
- (2) Remove the 4 screws [A], then remove the FOOT ASSEMBLY.

3.1.2 REMOVING THE BACK COVER

- Remove the HINGE COVER & the FOOT ASSEMBLY.
 - (1) Remove the SOCKET DOOR.
 - (2) Remove the 7 screws [B].
 - (3) Remove the BACK COVER toward you.

3.1.3 REMOVING THE AV JACK BRACKET

- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
 - (1) Remove the 2 screws [C].
 - (2) Remove the AV JACK BRACKET.

3.1.4 REMOVING THE AV JACK PWB

- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
- Remove the AV JACK BRACKET.
 - (1) Remove the 2 screws [D].
 - (2) Remove the AV JACK PWB.

3.1.5 REMOVING THE FRONT CONTROL PWB

- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
 - (1) Remove the 2 screws [E].
 - (2) Remove the FRONT CONTROL PWB with FUNCTION BUTTON.
 - (3) Remove the FRONT CONTROL PWB from FUNCTION BUTTON.

3.1.6 REMOVING THE MAIN PWB

- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
 - (1) Remove the 7 screws [F].
 - (2) Remove the MAIN PWB.

3.1.7 REMOVING THE INVERTER UNIT

- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
 - (1) Remove the 2 screws [G].
 - (2) Remove the INVERTER UNIT.

3.1.8 REMOVING THE SCART BRACKET

- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
 - (1) Remove the 2 screws [H].
 - (2) Remove the SCART BRACKET.

3.1.9 REMOVING THE MAIN FRAME

- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
- Remove the SCART BRACKET.
 - (1) Remove the 4 screws [J].
 - (2) Remove the MAIN FRAME from the FRONT PANEL.

3.1.10 REMOVING THE LCD PANEL UNIT

- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
- Remove the SCART BRACKET.
- Remove the MAIN FRAME.
 - (1) Remove the 4 screws [K].
 - (2) Slightly raise the both sides of the LCD PANEL UNIT by hand from the MAIN FRAME.

NOTE :

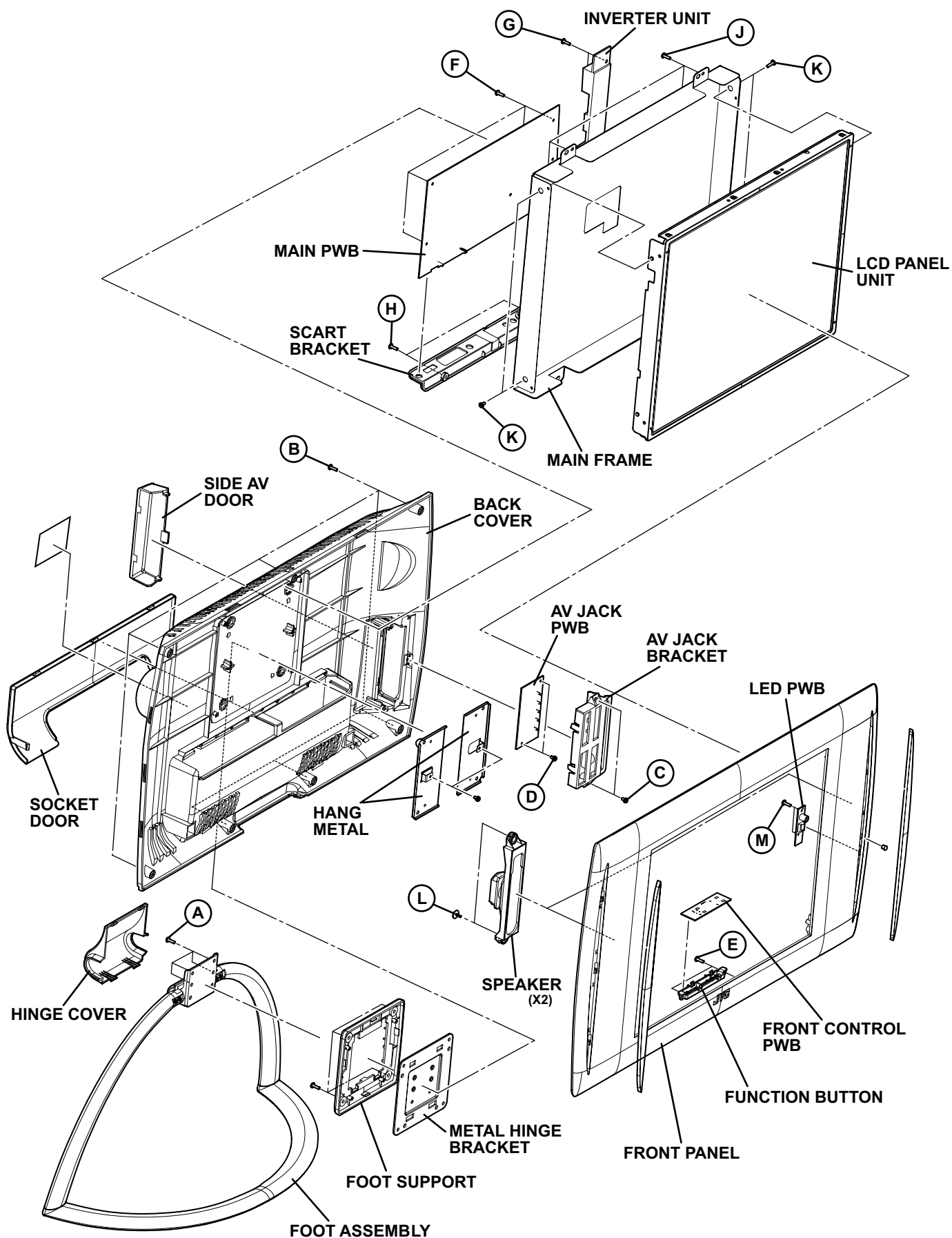
- Pay special attention not to break or damage on the LCD PANEL face or frame.
- The LCD PANEL UNIT is fixed to the FRONT COVER (at the back side) by using double-side adhesive tapes. To remove the LCD PANEL UNIT, remove the adhesive tape on the FRONT PANELS slowly.

3.1.11 REMOVING THE SPEAKERS

- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
 - (1) Remove the 2 screws [L].
 - (2) Remove the SPEAKER from the FRONT PANEL.
 - (3) Follow the same when removing the other hand speaker.

3.1.12 REMOVING THE LED PWB

- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
 - (1) Remove the 2 screws [M].
 - (2) Remove the LED PWB from the FRONT PANEL.



3.2 MEMORY IC REPLACEMENT

- This model uses the memory IC.
- This memory IC stores data for proper operation of the video and drive circuits.
- When replacing, be sure to use an IC containing this (initial value) data.

3.2.1 SETTINGS OF FACTORY SHIPMENT

3.2.1.1 BUTTON OPERATION

Setting item	Setting position
POWER	Off
TV/AV	TV

3.2.1.2 REMOTE CONTROL DIRECT OPERATION

Setting item	Setting position
ZOOM	AUTO

3.2.1.3 REMOTE CONTROL MENU OPERATION

(1) PICTURE

Setting item	Setting position
MODE	Bright
Contrast	36 Step
Bright-1	26 Step
Sharpness	11 Step
Colour	39 Step
Bright-2	Med.
Colour Temp.	Cool

(2) SOUND

Setting item	Setting position
Volume	10 Step
Bass	16 Step
Treble	15 Step
Balance	16 Step
Hyper Sound	Off

(3) FEATURE

Setting item	Setting position
Sleep Timer	Off
Child Lock	Off
Language	English
Blue Back	Off

(4) INSTALLATION

Setting item	Setting position
Colour System	Auto
VCR	Off

3.3 REPLACEMENT OF CHIP COMPONENT

3.3.1 CAUTIONS

- (1) Avoid heating for more than 3 seconds.
- (2) Do not rub the electrodes and the resist parts of the pattern.
- (3) When removing a chip part, melt the solder adequately.
- (4) Do not reuse a chip part after removing it.

3.3.2 SOLDERING IRON

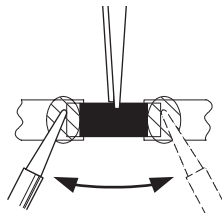
- (1) Use a high insulation soldering iron with a thin pointed end of it.
- (2) A 30w soldering iron is recommended for easily removing parts.

3.3.3 REPLACEMENT STEPS

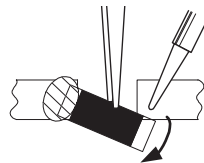
1. How to remove Chip parts

[Resistors, capacitors, etc.]

- (1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.



- (2) Shift with the tweezers and remove the chip part.

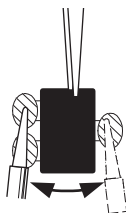


[Transistors, diodes, variable resistors, etc.]

- (1) Apply extra solder to each lead.



- (2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.



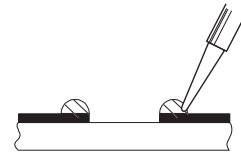
NOTE :

After removing the part, remove remaining solder from the pattern.

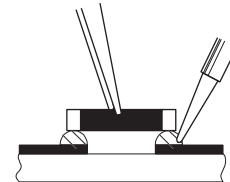
2. How to install Chip parts

[Resistors, capacitors, etc.]

- (1) Apply solder to the pattern as indicated in the figure.

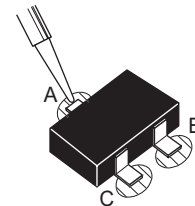


- (2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

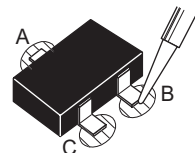


[Transistors, diodes, variable resistors, etc.]

- (1) Apply solder to the pattern as indicated in the figure.
- (2) Grasp the chip part with tweezers and place it on the solder.
- (3) First solder lead **A** as indicated in the figure.



- (4) Then solder leads **B** and **C**.



SECTION 4 ADJUSTMENT

This service manual does not describe ADJUSTMENT.

SECTION 5 TROUBLESHOOTING

This service manual does not describe TROUBLESHOOTING.



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(No.YA306)



Printed in Japan
VPT

JVC

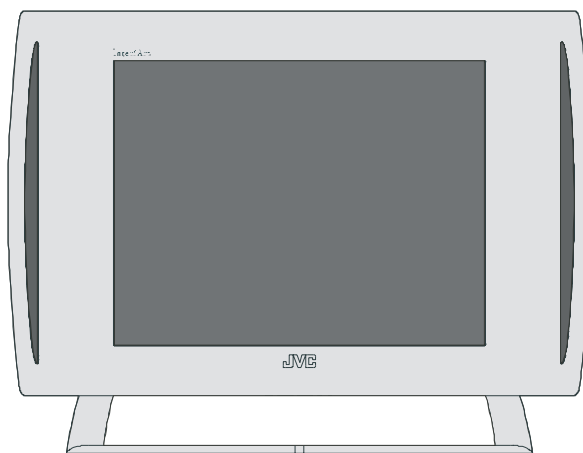
SCHEMATIC DIAGRAMS

WIDE LCD PANEL TELEVISION

LT-15B60SJ, LT-15B60SW

CD-ROM No.SML200510

InteriArt



LT-15B60SJ, LT-15B60SW

STANDARD CIRCUIT DIAGRAM

■ NOTE ON USING CIRCUIT DIAGRAMS

1.SAFETY

The components identified by the \triangle symbol and shading are critical for safety. For continued safety replace safety critical components only with manufactures recommended parts.

2.SPECIFIED VOLTAGE AND WAVEFORM VALUES

The voltage and waveform values have been measured under the following conditions.

- (1)Input signal : Colour bar signal
- (2)Setting positions of each knob/button and variable resistor : Original setting position when shipped
- (3)Internal resistance of tester : DC 20k Ω /V
- (4)Oscilloscope sweeping time : H \Rightarrow 20 μ s / div
: V \Rightarrow 5ms / div
: Others \Rightarrow Sweeping time is specified
- (5)Voltage values : All DC voltage values

* Since the voltage values of signal circuit vary to some extent according to adjustments, use them as reference values.

3.INDICATION OF PARTS SYMBOL [EXAMPLE]

- In the PW board : R209 \rightarrow R209

4.INDICATIONS ON THE CIRCUIT DIAGRAM

(1)Resistors

● Resistance value

- No unit : [Ω]
- K : [k Ω]
- M : [M Ω]

● Rated allowable power

- No indication : 1/16 [W]
- Others : As specified

● Type

- No indication : Carbon resistor
- OMR : Oxide metal film resistor
- MFR : Metal film resistor
- MPR : Metal plate resistor
- UNFR : Uninflammable resistor
- FR : Fusible resistor

* Composition resistor 1/2 [W] is specified as 1/2S or Comp.

(2)Capacitors

● Capacitance value

- 1 or higher : [pF]
- less than 1 : [μ F]

● Withstand voltage

- No indication : DC50[V]
- Others : DC withstand voltage [V]
- AC indicated : AC withstand voltage [V]

* Electrolytic Capacitors

47/50[Example]: Capacitance value [μ F]/withstand voltage[V]

●Type

- No indication : Ceramic capacitor
- MM : Metalized mylar capacitor
- PP : Polypropylene capacitor
- MPP : Metalized polypropylene capacitor
- MF : Metalized film capacitor
- TF : Thin film capacitor
- BP : Bipolar electrolytic capacitor
- TAN : Tantalum capacitor

(3)Coils

- No unit : [μ H]
- Others : As specified

(4)Power Supply




-  : B1
-  : B2 (12V)
-  : 9V
-  : 5V

* Respective voltage values are indicated





(5)Test point

-  : Test point
-  : Only test point display



(6)Connecting method

-  : Connector
-  : Wrapping or soldering
-  : Receptacle

(7)Ground symbol

-  : LIVE side ground
-  : ISOLATED(NEUTRAL) side ground
-  : EARTH ground
-  : DIGITAL ground

5.NOTE FOR REPAIRING SERVICE

This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : () side GND and the ISOLATED(NEUTRAL) : () side GND. Therefore, care must be taken for the following points.

- (1)Do not touch the LIVE side GND or the LIVE side GND and the ISOLATED(NEUTRAL) side GND simultaneously. if the above caution is not respected, an electric shock may be caused. Therefore, make sure that the power cord is surely removed from the receptacle when, for example, the chassis is pulled out.
- (2)Do not short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or never measure with a measuring apparatus (oscilloscope, etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND at the same time. If the above precaution is not respected, a fuse or any parts will be broken.

◆ Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.

NOTE

◆ Due improvement in performance, some part numbers show in the circuit diagram may not agree with those indicated in the part list.

When ordering parts, please use the numbers that appear in the Parts List.

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LED PWB CIRCUIT DIAGRAM 2-16

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AV JACK PWB PATTERN 2-21

FRONT CONTROL PWB PATTERN 2-21


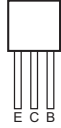
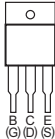
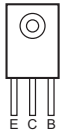
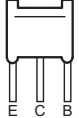
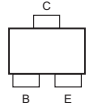
LED PWB PATTERN 2-22

USING P.W. BOARD


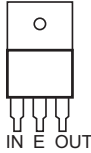
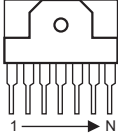
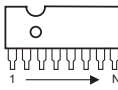
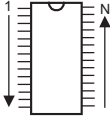
P.W.B ASS'Y name	LT-15B60SJ	LT-15B60SW
MAIN P.W. BOARD	VE-20215170	←
FRONT CONTROL P.W. BOARD	VE-20214331	←
AV JACK P.W. BOARD	VE-20214317	←
LED P.W. BOARD	VE-20214319	←

SEMICONDUCTOR SHAPES

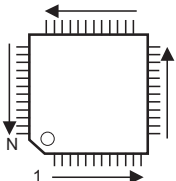
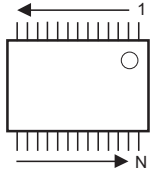
TRANSISTOR

BOTTOM VIEW	FRONT VIEW				TOP VIEW
					CHIP TR 

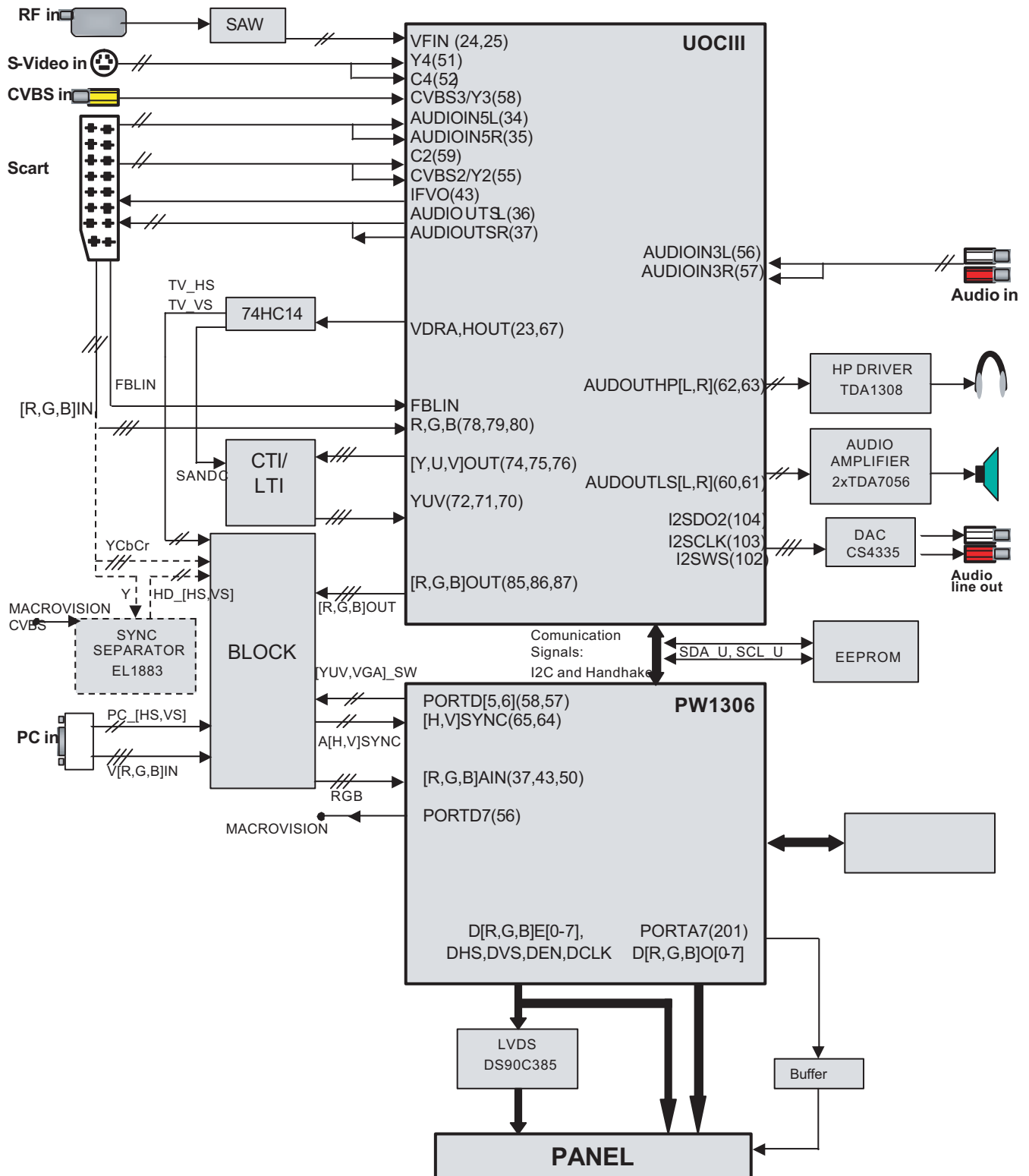
IC

BOTTOM VIEW	FRONT VIEW			TOP VIEW
				

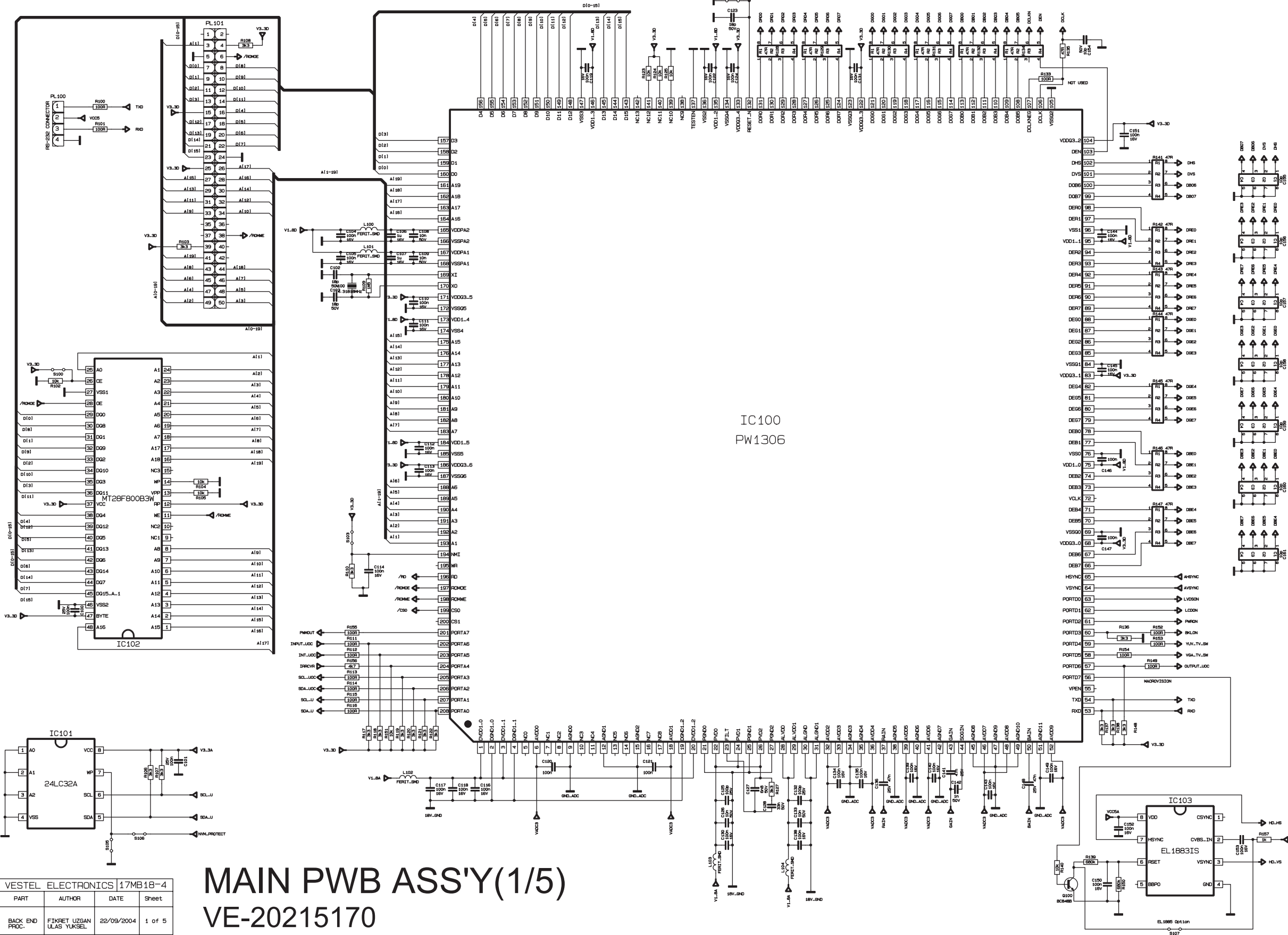
CHIP IC

TOP VIEW		
		

BLOCK DIAGRAM



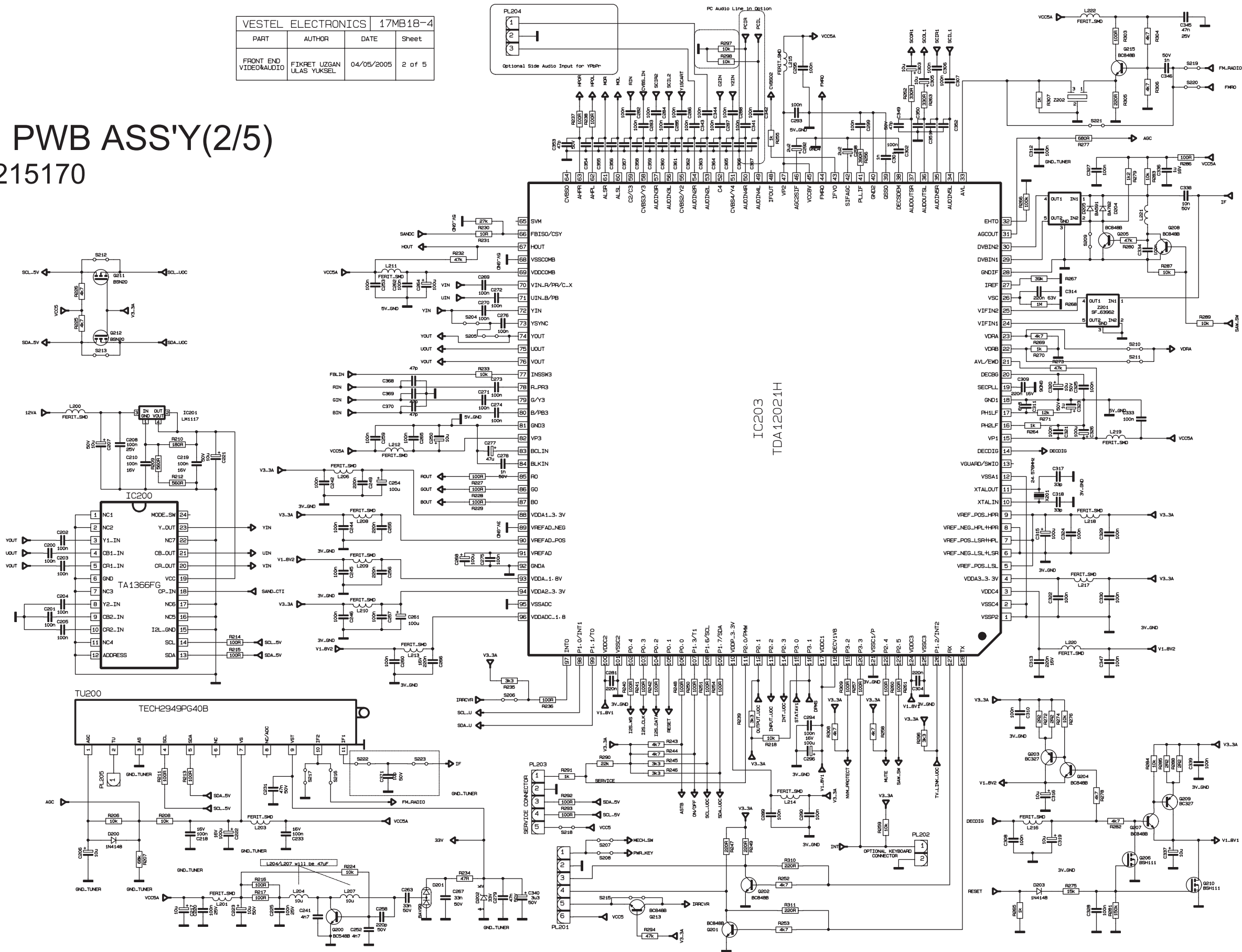
CIRCUIT DIAGRAMS
MAIN PWB CIRCUIT DIAGRAM (1/5)



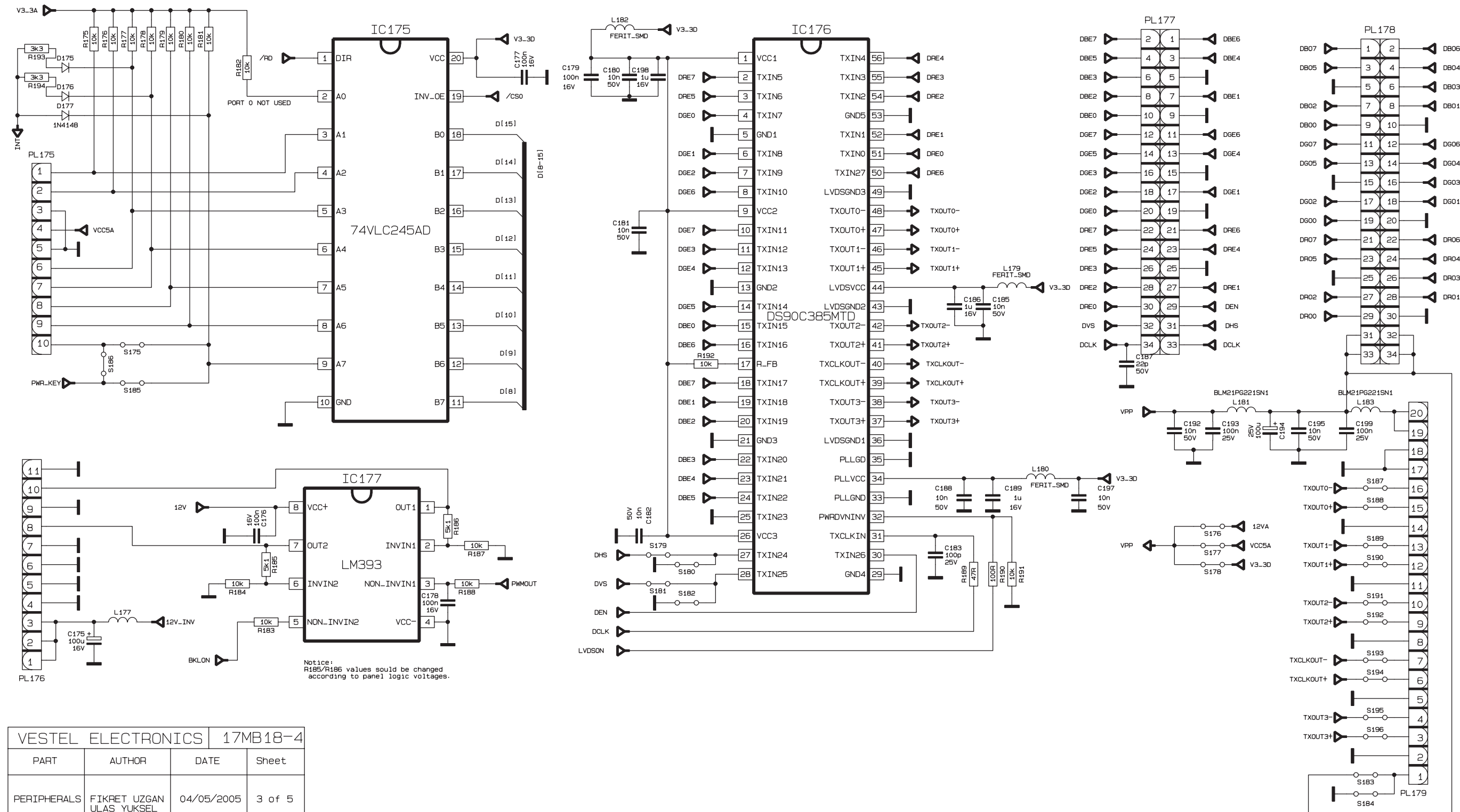
MAIN PWB ASS'Y(2/5)

VE-20215170

VESTEL ELECTRONICS		17MB18-4	
PART	AUTHOR	DATE	Sheet
FRONT END VIDEO&AUDIO	FIKRET UZGAN ULAS YUKSEL	04/05/2005	2 of 5

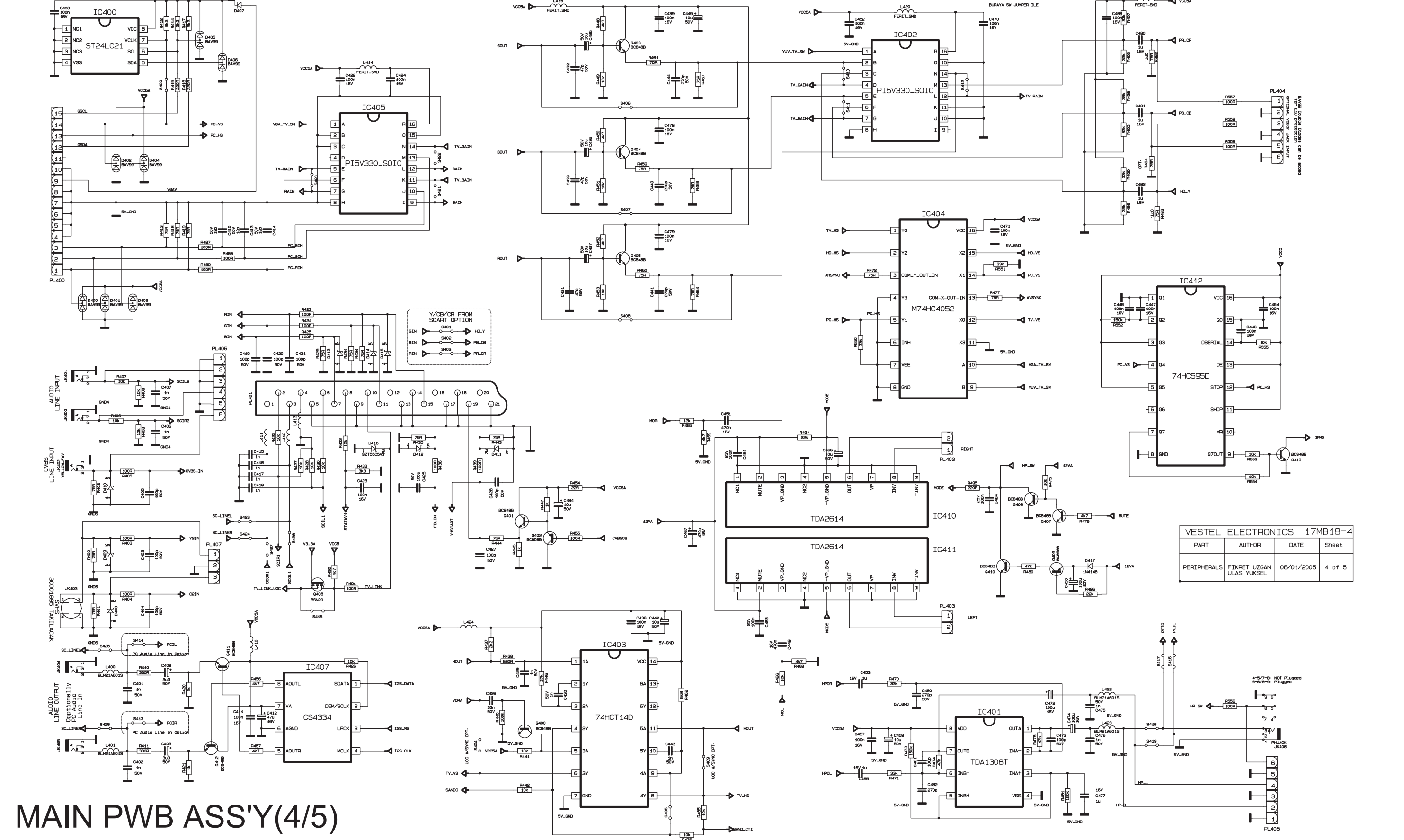


MAIN PWB CIRCUIT DIAGRAM (3/5)



MAIN PWB ASS'Y(3/5)
VE-20215170

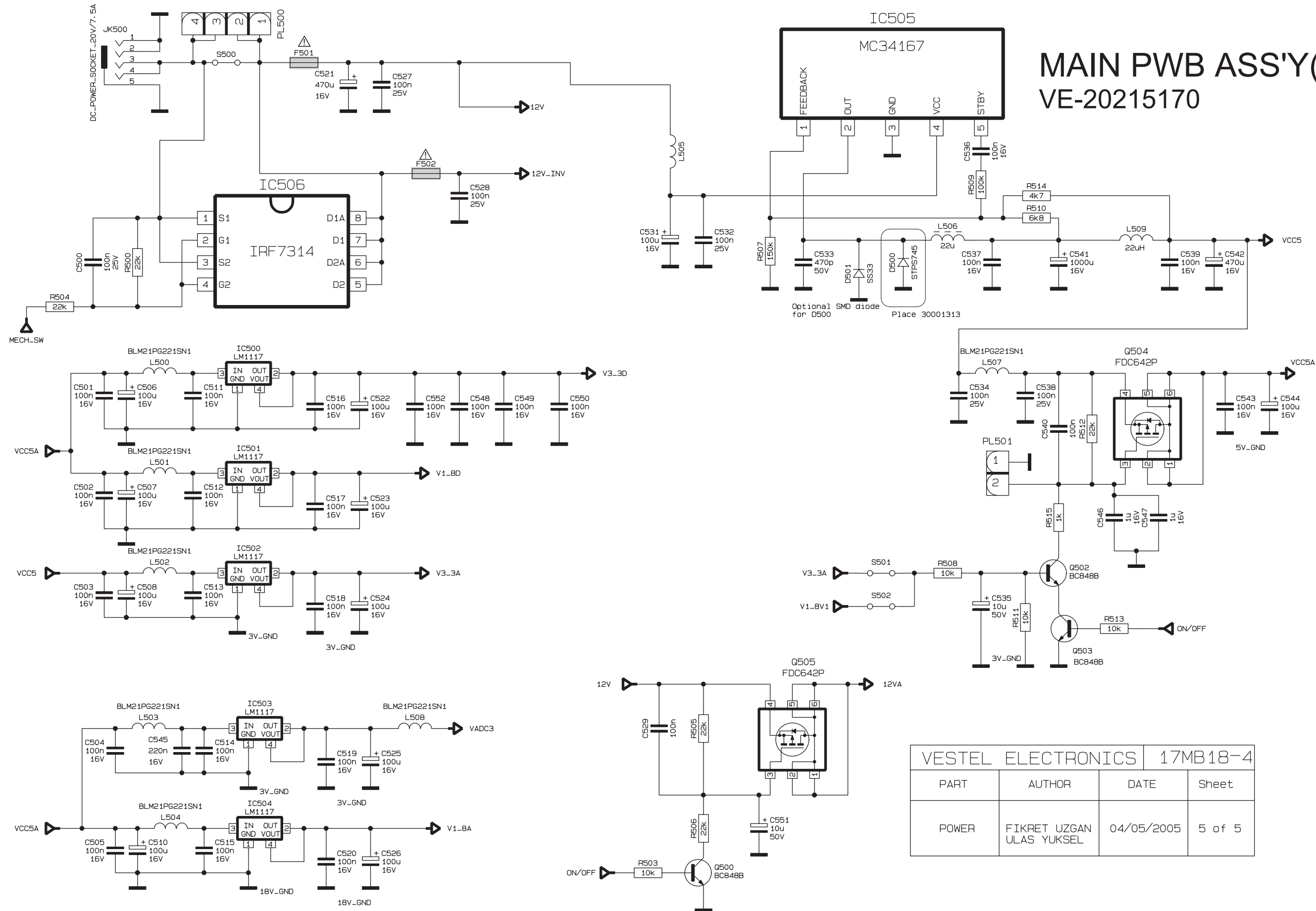
MAIN PWB CIRCUIT DIAGRAM (4/5)



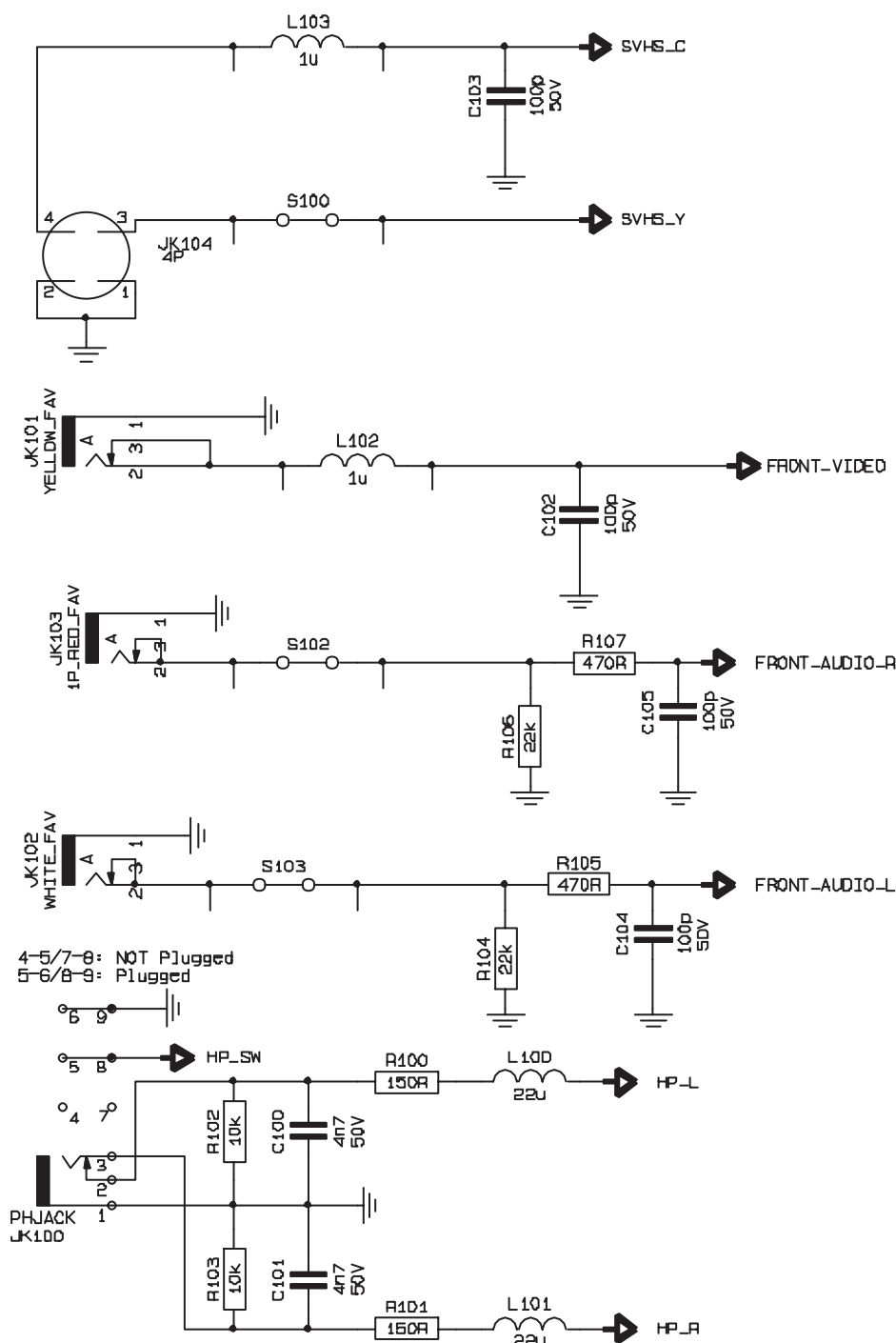
MAIN PWB ASS'Y(4/5)
VE-20215170

VESTEL ELECTRONICS		17MB18-4	
PART	AUTHOR	DATE	Sheet
PERIPHERALS	FIKRET UZGAN ULAS YUKSEL	06/01/2005	4 of 5

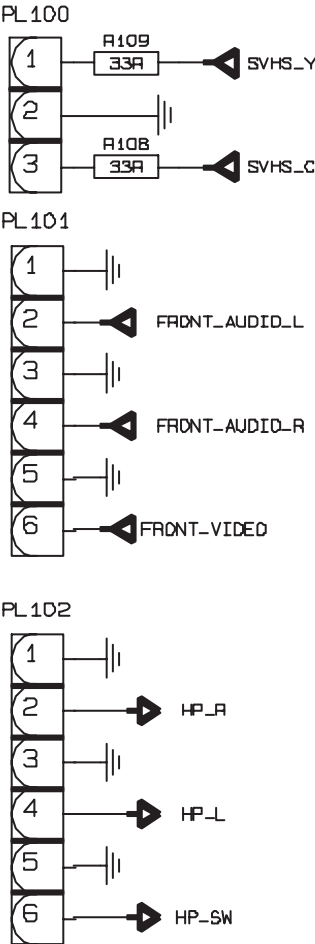
MAIN PWB ASS'Y(5/5)
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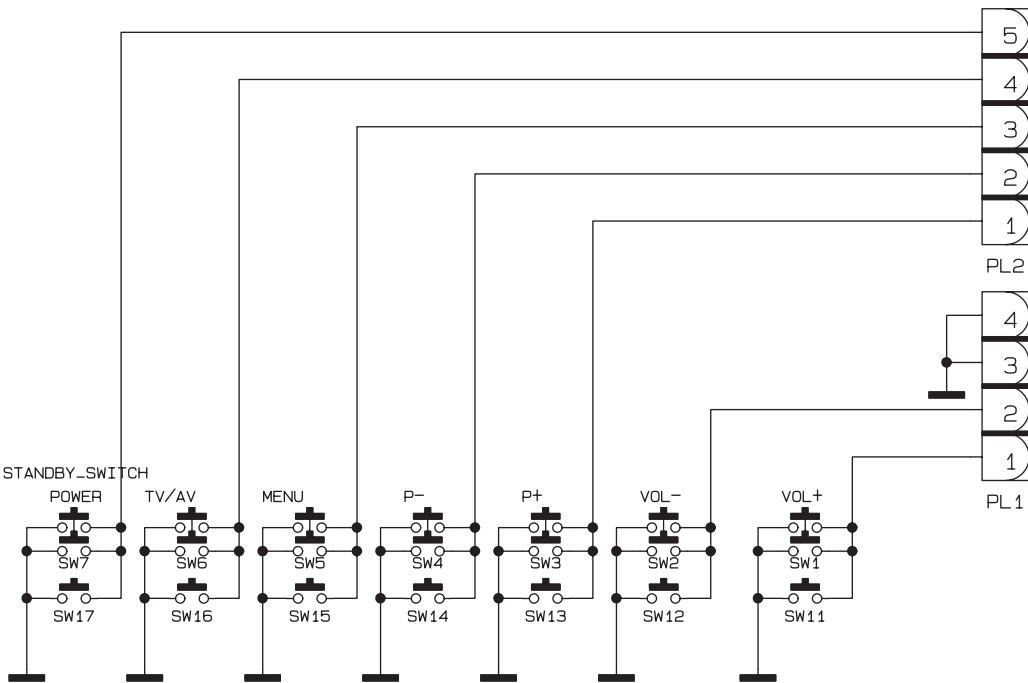
AV JACK PWB CIRCUIT DIAGRAM



AV JACK PWB ASS'Y
VE-20214317

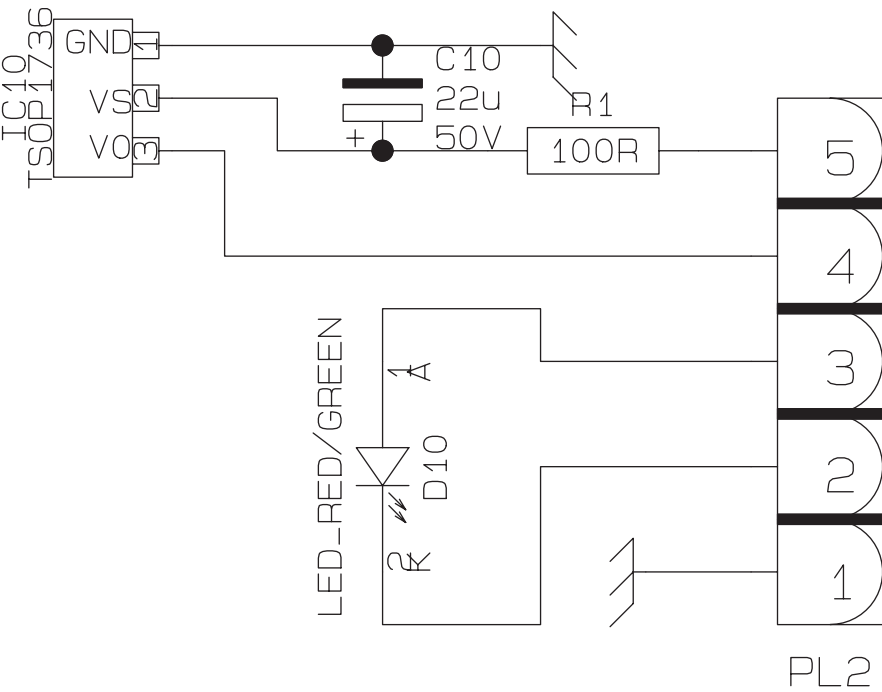


FRONT CONTROL PWB CIRCUIT DIAGRAM



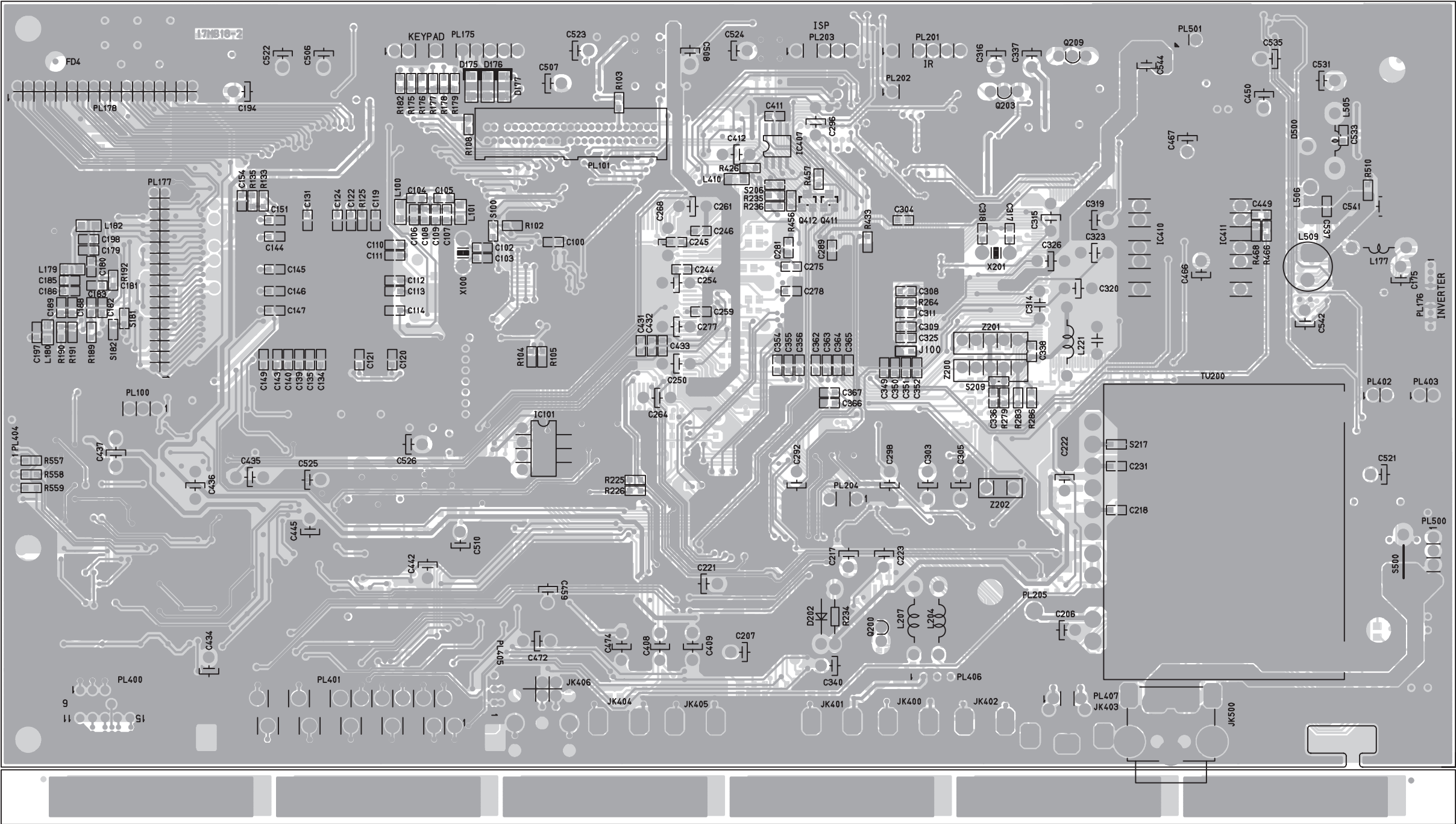
FRONT CONTROL PWB ASS'Y
VE-20214331

LED PWB CIRCUIT DIAGRAM

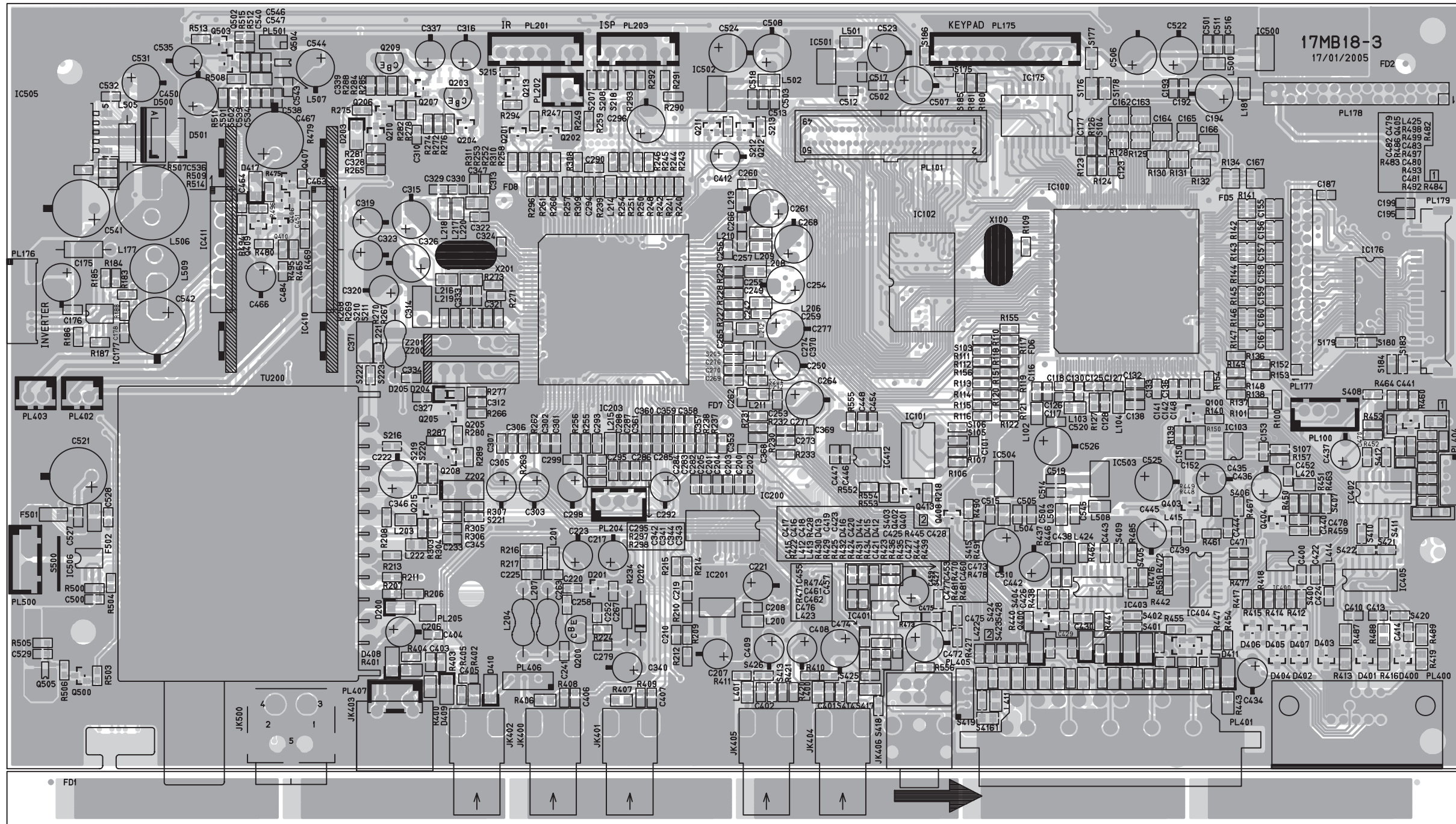


LED PWB ASS'Y
VE-20214319

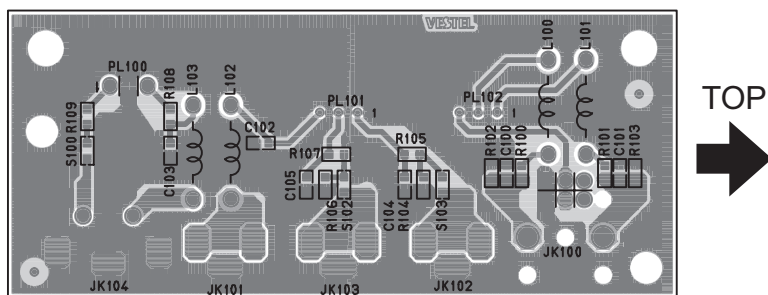
PATTERN DIAGRAMS
MAIN PWB PATTERN [SOLDER SIDE]



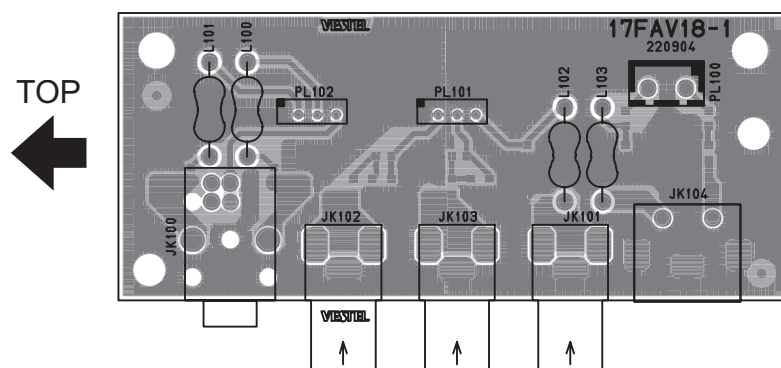
TOP
↑



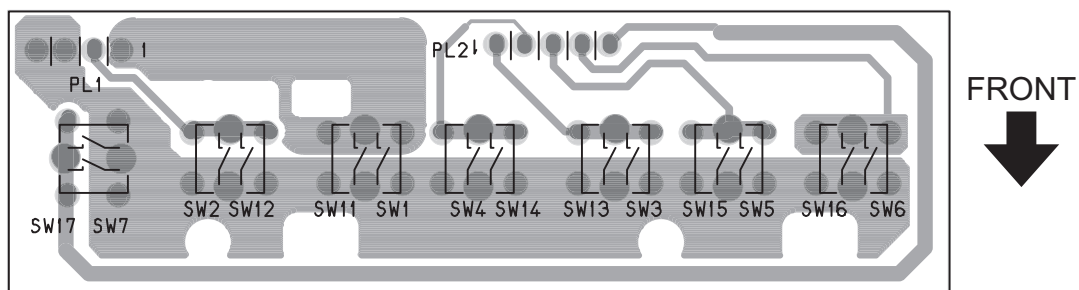
AV JACK PWB PATTERN [SOLDER SIDE]



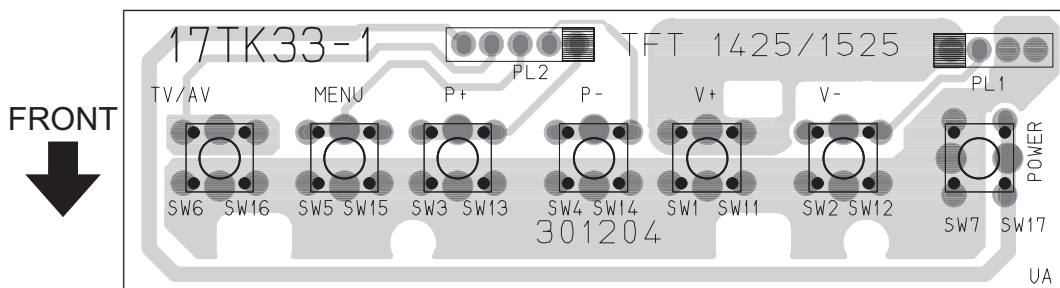
AV JACK PWB PATTERN [PARTS SIDE]



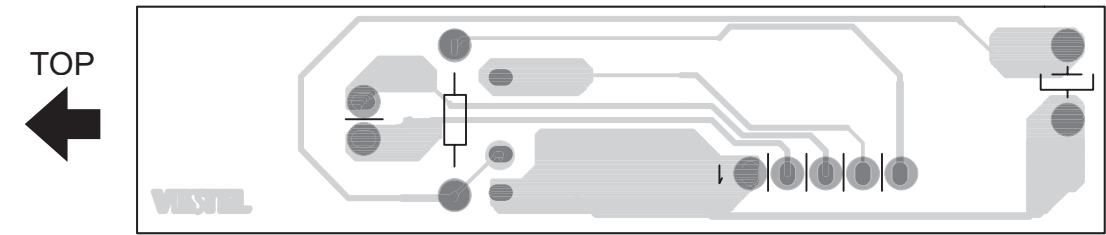
FRONT CONTROL PWB PATTERN [SOLDER SIDE]



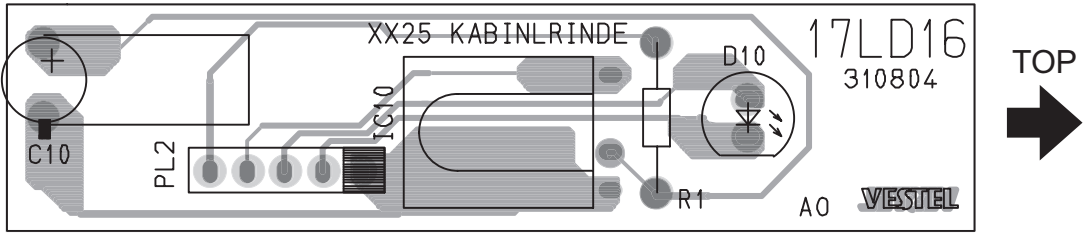
FRONT CONTROL PWB PATTERN [PARTS SIDE]



LED PWB PATTERN [SOLDER SIDE]



LED PWB PATTERN [PARTS SIDE]





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(No.YA306)



Printed in Japan
VPT

PARTS LIST

CAUTION

- The parts identified by the Δ symbol are important for the safety . Whenever replacing these parts, be sure to use specified ones to secure the safety.
- The parts not indicated in this Parts List and those which are filled with lines --- in the Parts No. columns will not be supplied.
- P.W. BOARD Ass'y will not be supplied, but those which are filled with the Parts No. in the Parts No. columns will be supplied.

ABBREVIATIONS OF RESISTORS, CAPACITORS AND TOLERANCES

RESISTORS		CAPACITORS	
CR	Carbon Resistor	C CAP.	Ceramic Capacitor
FR	Fusible Resistor	E CAP.	Electrolytic Capacitor
PR	Plate Resistor	M CAP.	Mylar Capacitor
VR	Variable Resistor	CH CAP.	Chip Capacitor
HV R	High Voltage Resistor	HV CAP.	High Voltage Capacitor
MF R	Metal Film Resistor	MF CAP.	Metalized Film Capacitor
MG R	Metal Glazed Resistor	MM CAP.	Metalized Mylar Capacitor
MP R	Metal Plate Resistor	MP CAP.	Metalized Polystyrol Capacitor
OM R	Metal Oxide Film Resistor	PP CAP.	Polypropylene Capacitor
CMF R	Coating Metal Film Resistor	PS CAP.	Polystyrol Capacitor
UNF R	Non-Flammable Resistor	TF CAP.	Thin Film Capacitor
CH V R	Chip Variable Resistor	MPP CAP.	Metalized Polypropylene Capacitor
CH MG R	Chip Metal Glazed Resistor	TAN. CAP.	Tantalum Capacitor
COMP. R	Composition Resistor	CH C CAP.	Chip Ceramic Capacitor
LPTC R	Linear Positive Temperature Coefficient Resistor	BP E CAP.	Bi-Polar Electrolytic Capacitor
		CH AL E CAP.	Chip Aluminum Electrolytic Capacitor
		CH AL BP CAP.	Chip Aluminum Bi-Polar Capacitor
		CH TAN. E CAP.	Chip Tantalum Electrolytic Capacitor
		CH AL BP E CAP.	Chip Tantalum Bi-Polar Electrolytic Capacitor

RESISTORS									
F	G	J	K	M	N	R	H	Z	P
±1%	±2%	±5%	±10%	±20%	±30%	+30% -10%	+50% -10%	+80% -20%	+100% -0%

CONTENTS

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EXPLODED VIEW	3-3
PRINTED WIRING BOARD PARTS LIST	3-4
PACKING	3-9
PACKING PARTS LIST	3-9

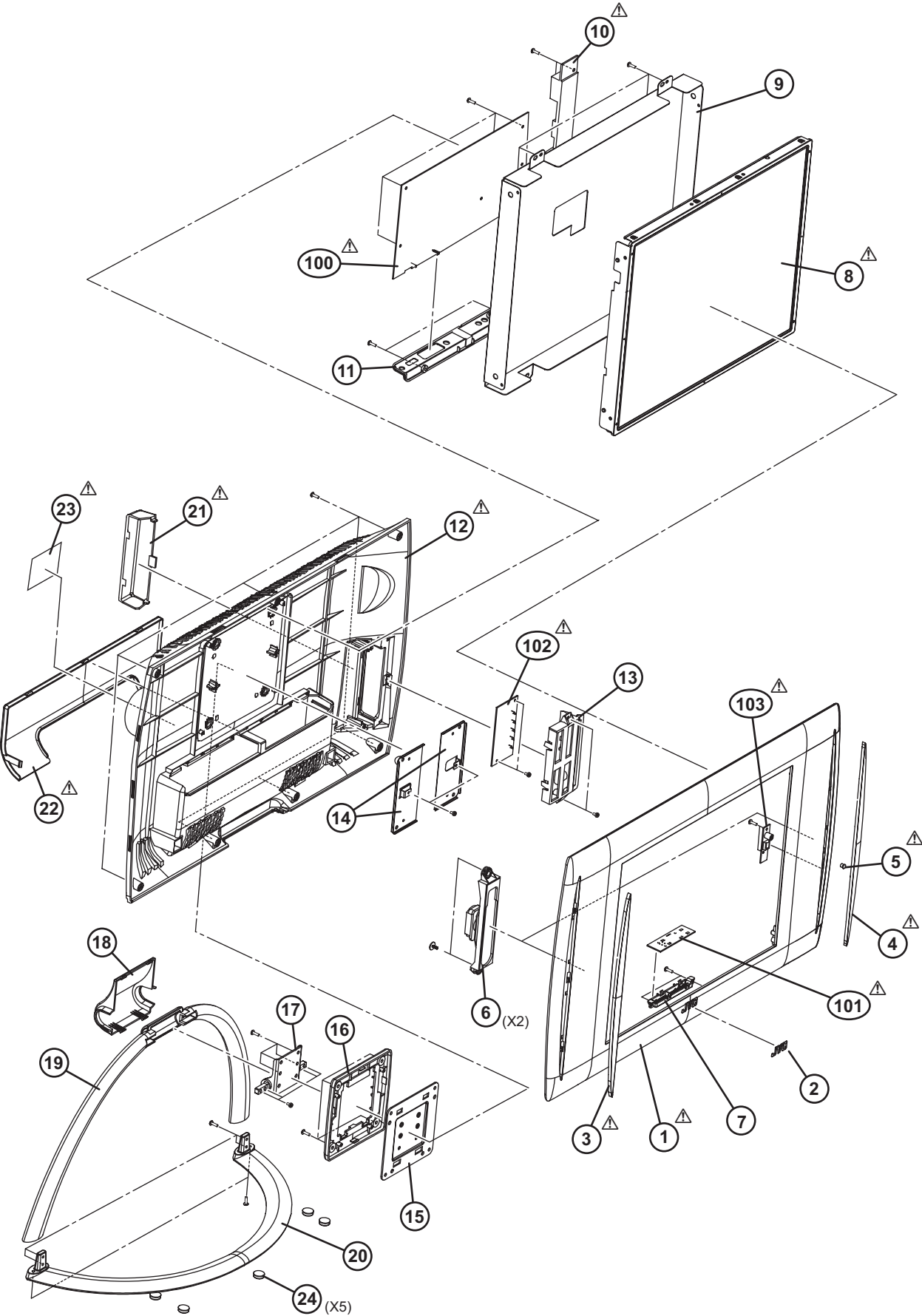
USING P.W. BOARD & REMOTE CONTROL UNIT

P.W.B ASS'Y	LT-15B60SJ	LT-15B60SW
MAIN P.W.B	VE-20215170	←
FRONT CONTROL P.W.B	VE-20214331	←
AV JACK P.W.B	VE-20214317	←
LED P.W.B	VE-20214319	←
REMOTE CONTROL UNIT	VE-30039453	←

EXPLODED VIEW PARTS LIST

△ Ref.No.	Part No.	Part Name	Description	Local
△ 1	VE-20197248	FRONT COVER		
2	VE-20181267	LOGO JCV		
△ 3	VE-40024112	LENS (LEFT)		
△ 4	VE-40024111	LENS (RIGHT)		
△ 5	VE-20203832	LENS (PRE-AMP)		
6	VE-30041403	SPEAKER	16R 5W 33x105MM (x2)	
7	VE-20182421	FUNCTION BUTTON		
△ 8	VE-30026829	LCD PANEL UNIT	TFT 4:3	
9	VE-35011023	MAIN FRAME		
△ 10	VE-30018343	4 CCFL INVERTER UNIT		
11	VE-20196634	SCART BRACKET		
△ 12	VE-20197261	BACK COVER		
13	VE-20183147	FAV BRACKET		
14	VE-35012930	HANG METAL	(x2)	
15	VE-35011433	METAL HINGE BRACKET		
16	VE-20197265	FOOT SUPPORT		
17	VE-45004766	METAL HINGE		
18	VE-20197266	HINGE COVER		
19	VE-35011436	FOOT HINGE		
20	VE-35011435	FOOT		
△ 21	VE-20197263	SIDE AV DOOR		
△ 22	VE-20197264	SOCKET DOOR		
△ 23	VE-20216353	LABEL		LT-15B60SJ
△ 23	VE-20216100	LABEL		LT-15B60SW
24	VE-40024515	FOOT RUBBER	(x5)	
△ 100	VE-20215170	MAIN PWB		
△ 101	VE-20214331	FRONT CONTROL PWB		
△ 102	VE-20214317	AV JACK PWB		
△ 103	VE-20214319	LED PWB		

EXPLODED VIEW



PRINTED WIRING BOARD PARTS LIST

△Ref No.	Part No.	Part Name	Description Local	△Ref No.	Part No.	Part Name	Description Local
IC10	VE-30031033	PREAMPLIFIER TFMS5360		C101	VE-30012603	CAPACITOR	100nF 25V K R
IC100	VE-30027986	IC		C102	VE-30012560	CAPACITOR	100pF 50V J
IC101	VE-20214313	IC(MEMORY)	(SERVICE)	C102	VE-30012569	CAPACITOR	33pF 50V J
IC102	VE-20184647	IC(MICOM)	(SERVICE)	C103	VE-30012560	CAPACITOR	100pF 50V J
IC175	VE-30029845	IC		C103	VE-30012569	CAPACITOR	33pF 50V J
IC176	VE-30040058	IC		C104	VE-30012560	CAPACITOR	100pF 50V J
IC177	VE-30026744	IC		C104	VE-30016654	CAPACITOR	100nF 16V K R
IC203	VE-30028012	IC		C105	VE-30012560	CAPACITOR	100pF 50V J
IC400	VE-30018006	IC		C105	VE-30016654	CAPACITOR	100nF 16V K R
IC401	VE-30010024	IC		C106	VE-30020694	CAPACITOR	1uF 16V Z Y5V
IC403	VE-30010807	IC		C107	VE-30020694	CAPACITOR	1uF 16V Z Y5V
IC404	VE-30010822	IC		C108	VE-30012582	CAPACITOR	10nF 50V K R
IC405	VE-30019372	IC		C109	VE-30012582	CAPACITOR	10nF 50V K R
IC410	VE-30031912	IC		C110	VE-30016654	CAPACITOR	100nF 16V K R
IC411	VE-30031912	IC		C111	VE-30016654	CAPACITOR	100nF 16V K R
IC500	VE-30017956	IC		C112	VE-30016654	CAPACITOR	100nF 16V K R
IC501	VE-30020607	IC		C113	VE-30016654	CAPACITOR	100nF 16V K R
IC502	VE-30017956	IC		C114	VE-30016654	CAPACITOR	100nF 16V K R
IC503	VE-30017956	IC		C116	VE-30016654	CAPACITOR	100nF 16V K R
IC504	VE-30020607	IC		C117	VE-30016654	CAPACITOR	100nF 16V K R
IC505	VE-30028675	IC		C118	VE-30016654	CAPACITOR	100nF 16V K R
Q200	VE-30001454	TRANSISTOR		C119	VE-30016654	CAPACITOR	100nF 16V K R
Q203	VE-30001452	TRANSISTOR		C120	VE-30016654	CAPACITOR	100nF 16V K R
Q204	VE-30001457	TRANSISTOR		C121	VE-30016654	CAPACITOR	100nF 16V K R
Q205	VE-30001457	TRANSISTOR		C122	VE-30016654	CAPACITOR	100nF 16V K R
Q206	VE-30024724	TRANSISTOR		C123	VE-30012564	CAPACITOR	18pF 50V J
Q207	VE-30001457	TRANSISTOR		C124	VE-30016654	CAPACITOR	100nF 16V K R
Q208	VE-30001457	TRANSISTOR		C125	VE-30012560	CAPACITOR	100pF 50V J
Q209	VE-30001452	TRANSISTOR		C126	VE-30012610	CAPACITOR	10nF 50V J
Q210	VE-30024724	TRANSISTOR		C127	VE-30037180	CAPACITOR	3.9nF 50V J R
Q211	VE-30029775	TRANSISTOR		C128	VE-30037178	CAPACITOR	39nF 25 J
Q212	VE-30029775	TRANSISTOR		C130	VE-30016654	CAPACITOR	100nF 16V K R
Q213	VE-30001457	TRANSISTOR		C131	VE-30016654	CAPACITOR	100nF 16V K R
Q400	VE-30001457	TRANSISTOR		C132	VE-30012560	CAPACITOR	100pF 50V J
Q401	VE-30001457	TRANSISTOR		C133	VE-30012610	CAPACITOR	10nF 50V J
Q402	VE-30001458	TRANSISTOR		C134	VE-30016654	CAPACITOR	100nF 16V K R
Q403	VE-30001457	TRANSISTOR		C135	VE-30016654	CAPACITOR	100nF 16V K R
Q404	VE-30001457	TRANSISTOR		C136	VE-30012590	CAPACITOR	47nF 50V K
Q405	VE-30001457	TRANSISTOR		C138	VE-30016654	CAPACITOR	100nF 16V K R
Q406	VE-30001457	TRANSISTOR		C139	VE-30016654	CAPACITOR	100nF 16V K R
Q407	VE-30001457	TRANSISTOR		C140	VE-30016654	CAPACITOR	100nF 16V K R
Q409	VE-30001458	TRANSISTOR		C141	VE-30012590	CAPACITOR	47nF 50V K
Q410	VE-30001457	TRANSISTOR		C142	VE-30012581	CAPACITOR	1nF 50V K R
Q500	VE-30001457	TRANSISTOR		C143	VE-30016654	CAPACITOR	100nF 16V K R
Q502	VE-30001457	TRANSISTOR		C144	VE-30016654	CAPACITOR	100nF 16V K R
Q503	VE-30001457	TRANSISTOR		C145	VE-30016654	CAPACITOR	100nF 16V K R
Q504	VE-30018060	TRANSISTOR		C146	VE-30016654	CAPACITOR	100nF 16V K R
Q505	VE-30018060	TRANSISTOR		C147	VE-30016654	CAPACITOR	100nF 16V K R
D10	VE-30040560	LED	RED/GREEN 5mm 2PIN 20mA	C148	VE-30012590	CAPACITOR	47nF 50V K
D175	VE-30001285	DIODE		C149	VE-30016654	CAPACITOR	100nF 16V K R
D176	VE-30001285	DIODE		C151	VE-30016654	CAPACITOR	100nF 16V K R
D177	VE-30001285	DIODE		C154	VE-30012573	CAPACITOR	47pF 50V J
D200	VE-30001285	DIODE		C155	VE-30031604	CAPACITOR	NET 10pF 50V F COG
D201	VE-30007169	DIODE		C156	VE-30031604	CAPACITOR	NET 10pF 50V F COG
D202	VE-30001377	Z DIODE		C157	VE-30031604	CAPACITOR	NET 10pF 50V F COG
D203	VE-30001285	DIODE		C158	VE-30031604	CAPACITOR	NET 10pF 50V F COG
D204	VE-30012411	DIODE		C159	VE-30031604	CAPACITOR	NET 10pF 50V F COG
D400	VE-30007169	DIODE		C160	VE-30031604	CAPACITOR	NET 10pF 50V F COG
D401	VE-30007169	DIODE		C161	VE-30031604	CAPACITOR	NET 10pF 50V F COG
D402	VE-30007169	DIODE		C167	VE-30031604	CAPACITOR	NET 10pF 50V F COG
D403	VE-30007169	DIODE		C175	VE-30000352	E CAPACITOR	100uF 16V M
D404	VE-30007169	DIODE		C176	VE-30016654	CAPACITOR	100nF 16V K R
D405	VE-30007169	DIODE		C177	VE-30016654	CAPACITOR	100nF 16V K R
D406	VE-30007169	DIODE		C178	VE-30016654	CAPACITOR	100nF 16V K R
D407	VE-30019996	DIODE		C179	VE-30016654	CAPACITOR	100nF 16V K R
D408	VE-30009699	Z DIODE		C180	VE-30012582	CAPACITOR	10nF 50V K R
D409	VE-30009699	Z DIODE		C181	VE-30012582	CAPACITOR	10nF 50V K R
D410	VE-30009699	Z DIODE		C182	VE-30012582	CAPACITOR	10nF 50V K R
D411	VE-30009699	Z DIODE		C185	VE-30012582	CAPACITOR	10nF 50V K R
D412	VE-30009699	Z DIODE		C186	VE-30020694	CAPACITOR	1uF 16V Z Y5V
D413	VE-30009699	Z DIODE		C188	VE-30012582	CAPACITOR	10nF 50V K R
D414	VE-30009699	Z DIODE		C189	VE-30020694	CAPACITOR	1uF 16V Z Y5V
D415	VE-30009699	Z DIODE		C192	VE-30012582	CAPACITOR	10nF 50V K R
D417	VE-30001285	DIODE		C193	VE-30012603	CAPACITOR	100nF 25V K R
D500	VE-30001313	DIODE		C194	VE-30000353	E CAPACITOR	100uF 25V M
C10	VE-30000371	CAPACITOR EL	22uF 50V M	C195	VE-30012582	CAPACITOR	10nF 50V K R
C100	VE-30012589	CAPACITOR	4.7nF 50V K	C197	VE-30012582	CAPACITOR	10nF 50V K R
C100	VE-30012603	CAPACITOR	100nF 25V K R	C198	VE-30020694	CAPACITOR	1uF 16V Z Y5V
C101	VE-30012589	CAPACITOR	4.7nF 50V K	C199	VE-30012603	CAPACITOR	100nF 25V K R
				C206	VE-30000400	E CAPACITOR	47uF 50V M
				C217	VE-30000345	E CAPACITOR	10uF 50V M
				C218	VE-30016654	CAPACITOR	100nF 16V K R
				C220	VE-30012603	CAPACITOR	100nF 25V K R
				C222	VE-30000352	E CAPACITOR	100uF 16V M

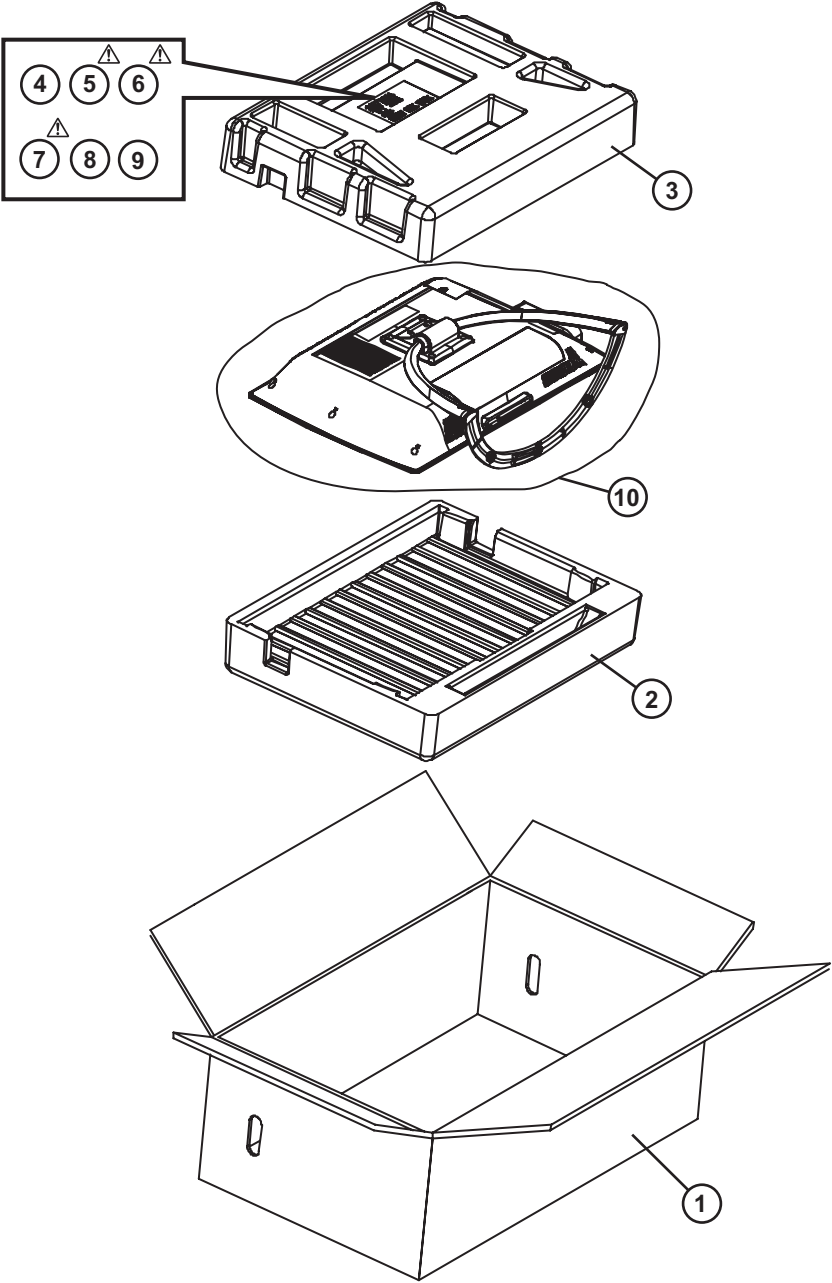
△Ref No.	Part No.	Part Name	Description Local	△Ref No.	Part No.	Part Name	Description Local
C223	VE-30000345	E CAPACITOR	10uF 50V M	C341	VE-30016654	CAPACITOR	100nF 16V K R
C225	VE-30012603	CAPACITOR	100nF 25V K R	C342	VE-30016654	CAPACITOR	100nF 16V K R
C231	VE-30012590	CAPACITOR	47nF 50V K	C347	VE-30016654	CAPACITOR	100nF 16V K R
C233	VE-30016654	CAPACITOR	100nF 16V K R	C349	VE-30012573	CAPACITOR	47pF 50V J
C241	VE-30012589	CAPACITOR	4.7nF 50V K	C350	VE-30012573	CAPACITOR	47pF 50V J
C242	VE-30016654	CAPACITOR	100nF 16V K R	C351	VE-30012573	CAPACITOR	47pF 50V J
C244	VE-30016654	CAPACITOR	100nF 16V K R	C352	VE-30012573	CAPACITOR	47pF 50V J
C245	VE-30016654	CAPACITOR	100nF 16V K R	C353	VE-30012573	CAPACITOR	47pF 50V J
C246	VE-30016654	CAPACITOR	100nF 16V K R	C354	VE-30012573	CAPACITOR	47pF 50V J
C249	VE-30016126	CAPACITOR	220nF 16V K R	C355	VE-30012573	CAPACITOR	47pF 50V J
C250	VE-30000345	E CAPACITOR	10uF 50V M	C356	VE-30012573	CAPACITOR	47pF 50V J
C252	VE-30012589	CAPACITOR	4.7nF 50V K	C357	VE-30012573	CAPACITOR	47pF 50V J
C253	VE-30016654	CAPACITOR	100nF 16V K R	C358	VE-30012573	CAPACITOR	47pF 50V J
C254	VE-30000352	E CAPACITOR	100uF 16V M	C359	VE-30012573	CAPACITOR	47pF 50V J
C255	VE-30016126	CAPACITOR	220nF 16V K R	C360	VE-30012573	CAPACITOR	47pF 50V J
C256	VE-30016126	CAPACITOR	220nF 16V K R	C361	VE-30012573	CAPACITOR	47pF 50V J
C257	VE-30016654	CAPACITOR	100nF 16V K R	C364	VE-30012573	CAPACITOR	47pF 50V J
C258	VE-30012568	CAPACITOR	270pF 50V J	C365	VE-30012573	CAPACITOR	47pF 50V J
C259	VE-30016654	CAPACITOR	100nF 16V K R	C366	VE-30012573	CAPACITOR	47pF 50V J
C260	VE-30016654	CAPACITOR	100nF 16V K R	C367	VE-30012573	CAPACITOR	47pF 50V J
C261	VE-30000352	E CAPACITOR	100uF 16V M	C368	VE-30012573	CAPACITOR	47pF 50V J
C262	VE-30016654	CAPACITOR	100nF 16V K R	C369	VE-30012573	CAPACITOR	47pF 50V J
C263	VE-30012588	CAPACITOR	33nF 50V K	C370	VE-30012573	CAPACITOR	47pF 50V J
C264	VE-30000352	E CAPACITOR	100uF 16V M	C400	VE-30016654	CAPACITOR	100nF 16V K R
C265	VE-30016654	CAPACITOR	100nF 16V K R	C403	VE-30012560	CAPACITOR	100pF 50V J
C266	VE-30016126	CAPACITOR	220nF 16V K R	C404	VE-30012560	CAPACITOR	100pF 50V J
C267	VE-30012588	CAPACITOR	33nF 50V K	C405	VE-30012560	CAPACITOR	100pF 50V J
C268	VE-30000352	E CAPACITOR	100uF 16V M	C406	VE-30012581	CAPACITOR	1nF 50V K R
C271	VE-30016654	CAPACITOR	100nF 16V K R	C407	VE-30012581	CAPACITOR	1nF 50V K R
C273	VE-30016654	CAPACITOR	100nF 16V K R	C410	VE-30012559	CAPACITOR	10pF 50V D COG
C274	VE-30016654	CAPACITOR	100nF 16V K R	C413	VE-30012559	CAPACITOR	10pF 50V D COG
C275	VE-30016654	CAPACITOR	100nF 16V K R	C414	VE-30012559	CAPACITOR	10pF 50V D COG
C276	VE-30016654	CAPACITOR	100nF 16V K R	C415	VE-30012581	CAPACITOR	1nF 50V K R
C277	VE-30000400	E CAPACITOR	47uF 50V M	C416	VE-30012581	CAPACITOR	1nF 50V K R
C278	VE-30012581	CAPACITOR	1nF 50V K R	C417	VE-30012581	CAPACITOR	1nF 50V K R
C279	VE-30012590	CAPACITOR	47nF 50V K	C418	VE-30012581	CAPACITOR	1nF 50V K R
C281	VE-30016126	CAPACITOR	220nF 16V K R	C419	VE-30012560	CAPACITOR	100pF 50V J
C282	VE-30016654	CAPACITOR	100nF 16V K R	C420	VE-30012560	CAPACITOR	100pF 50V J
C283	VE-30016654	CAPACITOR	100nF 16V K R	C421	VE-30012560	CAPACITOR	100pF 50V J
C284	VE-30016126	CAPACITOR	220nF 16V K R	C422	VE-30016654	CAPACITOR	100nF 16V K R
C285	VE-30016126	CAPACITOR	220nF 16V K R	C423	VE-30016654	CAPACITOR	100nF 16V K R
C286	VE-30016654	CAPACITOR	100nF 16V K R	C424	VE-30016654	CAPACITOR	100nF 16V K R
C287	VE-30016654	CAPACITOR	100nF 16V K R	C425	VE-30012560	CAPACITOR	100pF 50V J
C288	VE-30016654	CAPACITOR	100nF 16V K R	C426	VE-30012588	CAPACITOR	33nF 50V K
C289	VE-30016654	CAPACITOR	100nF 16V K R	C427	VE-30012560	CAPACITOR	100pF 50V J
C290	VE-30016654	CAPACITOR	100nF 16V K R	C428	VE-30012560	CAPACITOR	100pF 50V J
C292	VE-30000384	E CAPACITOR	2.2uF 50V M	C429	VE-30012581	CAPACITOR	1nF 50V K R
C293	VE-30016654	CAPACITOR	100nF 16V K R	C430	VE-30012581	CAPACITOR	1nF 50V K R
C294	VE-30016654	CAPACITOR	100nF 16V K R	C431	VE-30012573	CAPACITOR	47pF 50V J
C295	VE-30016654	CAPACITOR	100nF 16V K R	C432	VE-30012573	CAPACITOR	47pF 50V J
C296	VE-30000352	E CAPACITOR	100uF 16V M	C433	VE-30012573	CAPACITOR	47pF 50V J
C298	VE-30000384	E CAPACITOR	2.2uF 50V M	C434	VE-30000345	E CAPACITOR	10uF 50V M
C299	VE-30016654	CAPACITOR	100nF 16V K R	C435	VE-30000345	E CAPACITOR	10uF 50V M
C301	VE-30012581	CAPACITOR	1nF 50V K R	C436	VE-30000345	E CAPACITOR	10uF 50V M
C302	VE-30016654	CAPACITOR	100nF 16V K R	C437	VE-30000345	E CAPACITOR	10uF 50V M
C303	VE-30000345	E CAPACITOR	10uF 50V M	C438	VE-30016654	CAPACITOR	100nF 16V K R
C304	VE-30016126	CAPACITOR	220nF 16V K R	C439	VE-30016654	CAPACITOR	100nF 16V K R
C305	VE-30000345	E CAPACITOR	10uF 50V M	C440	VE-30012568	CAPACITOR	270pF 50V J
C306	VE-30016126	CAPACITOR	220nF 16V K R	C441	VE-30012568	CAPACITOR	270pF 50V J
C307	VE-30016126	CAPACITOR	220nF 16V K R	C442	VE-30000345	E CAPACITOR	10uF 50V M
C308	VE-30016654	CAPACITOR	100nF 16V K R	C443	VE-30012581	CAPACITOR	1nF 50V K R
C309	VE-30016126	CAPACITOR	220nF 16V K R	C444	VE-30012568	CAPACITOR	270pF 50V J
C310	VE-30016654	CAPACITOR	100nF 16V K R	C445	VE-30000352	E CAPACITOR	100uF 16V M
C311	VE-30012592	CAPACITOR	6.8nF 50V K	C449	VE-30024768	CAPACITOR	470nF 16V Z
C312	VE-30016654	CAPACITOR	100nF 16V K R	C450	VE-30000353	E CAPACITOR	100uF 25V M
C313	VE-30016126	CAPACITOR	220nF 16V K R	C451	VE-30024768	CAPACITOR	470nF 16V Z
C314	VE-30000092	CAPACITOR MKT	220nF 63V J	C453	VE-30020694	CAPACITOR	1uF 16V Z Y5V
C315	VE-30000352	E CAPACITOR	100uF 16V M	C455	VE-30020694	CAPACITOR	1uF 16V Z Y5V
C316	VE-30000345	E CAPACITOR	10uF 50V M	C457	VE-30016654	CAPACITOR	100nF 16V K R
C320	VE-30000345	E CAPACITOR	10uF 50V M	C459	VE-30000345	E CAPACITOR	10uF 50V M
C321	VE-30016654	CAPACITOR	100nF 16V K R	C460	VE-30012568	CAPACITOR	270pF 50V J
C322	VE-30016654	CAPACITOR	100nF 16V K R	C461	VE-30012560	CAPACITOR	100pF 50V J
C323	VE-30000362	E CAPACITOR	1uF 50V M	C462	VE-30012568	CAPACITOR	270pF 50V J
C324	VE-30016654	CAPACITOR	100nF 16V K R	C463	VE-30012603	CAPACITOR	100nF 25V K R
C325	VE-30016654	CAPACITOR	100nF 16V K R	C464	VE-30012603	CAPACITOR	100nF 25V K R
C326	VE-30000352	E CAPACITOR	100uF 16V M	C466	VE-30000345	E CAPACITOR	10uF 50V M
C327	VE-30016654	CAPACITOR	100nF 16V K R	C467	VE-30000407	E CAPACITOR	470uF 16V M
C328	VE-30016654	CAPACITOR	100nF 16V K R	C471	VE-30016654	CAPACITOR	100nF 16V K R
C329	VE-30016654	CAPACITOR	100nF 16V K R	C472	VE-30000352	E CAPACITOR	100uF 16V M
C330	VE-30016654	CAPACITOR	100nF 16V K R	C473	VE-30012560	CAPACITOR	100pF 50V J
C333	VE-30016654	CAPACITOR	100nF 16V K R	C474	VE-30000352	E CAPACITOR	100uF 16V M
C334	VE-30016654	CAPACITOR	100nF 16V K R	C475	VE-30012589	CAPACITOR	4.7nF 50V K
C336	VE-30020694	CAPACITOR	1uF 16V Z Y5V	C476	VE-30012589	CAPACITOR	4.7nF 50V K
C337	VE-30000345	E CAPACITOR	10uF 50V M	C477	VE-30020694	CAPACITOR	1uF 16V Z Y5V
C338	VE-30012582	CAPACITOR	10nF 50V K R	C478	VE-30016654	CAPACITOR	100nF 16V K R
C339	VE-30016654	CAPACITOR	100nF 16V K R	C479	VE-30016654	CAPACITOR	100nF 16V K R
C340	VE-30000393	E CAPACITOR	3.3uF 50V M	C484	VE-30012509	RESISTOR	1/16W 100K J

△Ref No.	Part No.	Part Name	Description Local	△Ref No.	Part No.	Part Name	Description Local
C501	VE-30016654	CAPACITOR	100nF 16V K R	R156	VE-30012692	RESISTOR	1/16W 4.7K J
C502	VE-30016654	CAPACITOR	100nF 16V K R	R175	VE-30012641	RESISTOR	1/16W 10K J
C503	VE-30016654	CAPACITOR	100nF 16V K R	R176	VE-30012641	RESISTOR	1/16W 10K J
C504	VE-30016654	CAPACITOR	100nF 16V K R	R177	VE-30012641	RESISTOR	1/16W 10K J
C505	VE-30016654	CAPACITOR	100nF 16V K R	R178	VE-30012641	RESISTOR	1/16W 10K J
C506	VE-30000352	E CAPACITOR	100uF 16V M	R179	VE-30012641	RESISTOR	1/16W 10K J
C507	VE-30000352	E CAPACITOR	100uF 16V M	R180	VE-30012641	RESISTOR	1/16W 10K J
C508	VE-30000352	E CAPACITOR	100uF 16V M	R181	VE-30012641	RESISTOR	1/16W 10K J
C510	VE-30000352	E CAPACITOR	100uF 16V M	R182	VE-30012641	RESISTOR	1/16W 10K J
C511	VE-30016654	CAPACITOR	100nF 16V K R	R183	VE-30012641	RESISTOR	1/16W 10K J
C512	VE-30016654	CAPACITOR	100nF 16V K R	R184	VE-30012641	RESISTOR	1/16W 10K J
C513	VE-30016654	CAPACITOR	100nF 16V K R	R185	VE-30012510	RESISTOR	1/16W 100R J
C514	VE-30016654	CAPACITOR	100nF 16V K R	R186	VE-30012510	RESISTOR	1/16W 100R J
C515	VE-30016654	CAPACITOR	100nF 16V K R	R187	VE-30012641	RESISTOR	1/16W 10K J
C516	VE-30016654	CAPACITOR	100nF 16V K R	R188	VE-30012641	RESISTOR	1/16W 10K J
C517	VE-30016654	CAPACITOR	100nF 16V K R	R190	VE-30012510	RESISTOR	1/16W 100R J
C518	VE-30016654	CAPACITOR	100nF 16V K R	R191	VE-30012641	RESISTOR	1/16W 10K J
C519	VE-30016654	CAPACITOR	100nF 16V K R	R192	VE-30012641	RESISTOR	1/16W 10K J
C520	VE-30016654	CAPACITOR	100nF 16V K R	R193	VE-30012641	RESISTOR	1/16W 10K J
C521	VE-30000407	E CAPACITOR	470uF 16V M	R194	VE-30012641	RESISTOR	1/16W 10K J
C522	VE-30000352	E CAPACITOR	100uF 16V M	R206	VE-30012669	RESISTOR	1/16W 22K J
C523	VE-30000352	E CAPACITOR	100uF 16V M	R207	VE-30012708	RESISTOR	1/16W 68K J
C524	VE-30000352	E CAPACITOR	100uF 16V M	R208	VE-30012641	RESISTOR	1/16W 10K J
C525	VE-30000352	E CAPACITOR	100uF 16V M	R211	VE-30012510	RESISTOR	1/16W 100R J
C526	VE-30000352	E CAPACITOR	100uF 16V M	R213	VE-30012510	RESISTOR	1/16W 100R J
C527	VE-30012603	CAPACITOR	100nF 25V K R	R216	VE-30000464	RESISTOR	1/10W 100R J
C528	VE-30012603	CAPACITOR	100nF 25V K R	R217	VE-30000464	RESISTOR	1/10W 100R J
C529	VE-30016654	CAPACITOR	100nF 16V K R	R224	VE-30012641	RESISTOR	1/16W 10K J
C531	VE-30000352	E CAPACITOR	100uF 16V M	R225	VE-30012692	RESISTOR	1/16W 4.7K J
C532	VE-30012603	CAPACITOR	100nF 25V K R	R226	VE-30012692	RESISTOR	1/16W 4.7K J
C533	VE-30012574	CAPACITOR	470pF 50V J	R227	VE-30012510	RESISTOR	1/16W 100R J
C534	VE-30012603	CAPACITOR	100nF 25V K R	R228	VE-30012510	RESISTOR	1/16W 100R J
C535	VE-30000345	E CAPACITOR	10uF 50V M	R229	VE-30012510	RESISTOR	1/16W 100R J
C536	VE-30016654	CAPACITOR	100nF 16V K R	R230	VE-30012674	RESISTOR	1/16W 27K J
C537	VE-30016654	CAPACITOR	100nF 16V K R	R231	VE-30012982	RESISTOR	1/16W 10R J
C538	VE-30012603	CAPACITOR	100nF 25V K R	R232	VE-30012696	RESISTOR	1/16W 47K J
C539	VE-30016654	CAPACITOR	100nF 16V K R	R233	VE-30012641	RESISTOR	1/16W 10K J
C540	VE-30016654	CAPACITOR	100nF 16V K R	R234	VE-30000706	RESISTOR CF	1/4W 47R J
C541	VE-30000359	E CAPACITOR	1000uF 16V M	R235	VE-30012677	RESISTOR	1/16W 3.3K J
C542	VE-30000407	E CAPACITOR	470uF 16V M	R236	VE-30012510	RESISTOR	1/16W 100R J
C543	VE-30016654	CAPACITOR	100nF 16V K R	R237	VE-30012510	RESISTOR	1/16W 100R J
C544	VE-30000352	E CAPACITOR	100uF 16V M	R238	VE-30012510	RESISTOR	1/16W 100R J
C545	VE-30016126	CAPACITOR	220nF 16V K R	R239	VE-30012677	RESISTOR	1/16W 3.3K J
				R243	VE-30012692	RESISTOR	1/16W 4.7K J
R1	VE-30000459	RESISTOR CF	1/4W 100R J	R244	VE-30012692	RESISTOR	1/16W 4.7K J
R100	VE-30012510	RESISTOR	1/16W 100R J	R245	VE-30012677	RESISTOR	1/16W 3.3K J
R101	VE-30012510	RESISTOR	1/16W 100R J	R246	VE-30012677	RESISTOR	1/16W 3.3K J
R102	VE-30012641	RESISTOR	1/16W 10K J	R248	VE-30012510	RESISTOR	1/16W 100R J
R103	VE-30012641	RESISTOR	1/16W 10K J	R250	VE-30012510	RESISTOR	1/16W 100R J
R103	VE-30012677	RESISTOR	1/16W 3.3K J	R251	VE-30012510	RESISTOR	1/16W 100R J
R104	VE-30012641	RESISTOR	1/16W 10K J	R254	VE-30012510	RESISTOR	1/16W 100R J
R105	VE-30012641	RESISTOR	1/16W 10K J	R255	VE-30012684	RESISTOR	1/16W 330R J
R106	VE-30012677	RESISTOR	1/16W 3.3K J	R256	VE-30012688	RESISTOR	1/16W 390R J
R107	VE-30012677	RESISTOR	1/16W 3.3K J	R257	VE-30012510	RESISTOR	1/16W 100R J
R108	VE-30012677	RESISTOR	1/16W 3.3K J	R258	VE-30012692	RESISTOR	1/16W 4.7K J
R109	VE-30012507	RESISTOR	1/16W 1.5M J	R259	VE-30012641	RESISTOR	1/16W 10K J
R110	VE-30012677	RESISTOR	1/16W 3.3K J	R260	VE-30012510	RESISTOR	1/16W 100R J
R111	VE-30012510	RESISTOR	1/16W 100R J	R261	VE-30012510	RESISTOR	1/16W 100R J
R112	VE-30012510	RESISTOR	1/16W 100R J	R262	VE-30012684	RESISTOR	1/16W 330R J
R113	VE-30012510	RESISTOR	1/16W 100R J	R263	VE-30012684	RESISTOR	1/16W 330R J
R114	VE-30012510	RESISTOR	1/16W 100R J	R264	VE-30012657	RESISTOR	1/16W 1K J
R115	VE-30012510	RESISTOR	1/16W 100R J	R265	VE-30012657	RESISTOR	1/16W 1K J
R116	VE-30012510	RESISTOR	1/16W 100R J	R266	VE-30012509	RESISTOR	1/16W 100K J
R117	VE-30012677	RESISTOR	1/16W 3.3K J	R267	VE-30012689	RESISTOR	1/16W 39K J
R118	VE-30012677	RESISTOR	1/16W 3.3K J	R268	VE-30012507	RESISTOR	1/16W 1.5M J
R123	VE-30012641	RESISTOR	1/16W 10K J	R269	VE-30012692	RESISTOR	1/16W 4.7K J
R124	VE-30012641	RESISTOR	1/16W 10K J	R270	VE-30012657	RESISTOR	1/16W 1K J
R125	VE-30012641	RESISTOR	1/16W 10K J	R271	VE-30012644	RESISTOR	1/16W 12K J
R126	VE-30012641	RESISTOR	1/16W 10K J	R272	VE-30015578	RESISTOR	1/16W 2.2R J
R127	VE-30012677	RESISTOR	1/16W 3.3K J	R273	VE-30012696	RESISTOR	1/16W 47K J
R134	VE-30017653	RESISTOR SARRAY	1/16W 47RX4 J	R274	VE-30015578	RESISTOR	1/16W 2.2R J
R135	VE-30020529	FERRITE	120R/100MHz 200mA	R275	VE-30012644	RESISTOR	1/16W 12K J
R136	VE-30012677	RESISTOR	1/16W 3.3K J	R276	VE-30012641	RESISTOR	1/16W 10K J
R137	VE-30012677	RESISTOR	1/16W 3.3K J	R277	VE-30012707	RESISTOR	1/16W 680R J
R138	VE-30012677	RESISTOR	1/16W 3.3K J	R278	VE-30012692	RESISTOR	1/16W 4.7K J
R141	VE-30030692	FERRITE NET	120R/100MHz 150mA	R279	VE-30012657	RESISTOR	1/16W 1K J
R142	VE-30030692	FERRITE NET	120R/100MHz 150mA	R280	VE-30012696	RESISTOR	1/16W 47K J
R143	VE-30030692	FERRITE NET	120R/100MHz 150mA	R281	VE-30012648	RESISTOR	1/16W 150K J
R144	VE-30030692	FERRITE NET	120R/100MHz 150mA	R282	VE-30012692	RESISTOR	1/16W 4.7K J
R145	VE-30030692	FERRITE NET	120R/100MHz 150mA	R283	VE-30012641	RESISTOR	1/16W 10K J
R146	VE-30030692	FERRITE NET	120R/100MHz 150mA	R284	VE-30012641	RESISTOR	1/16W 10K J
R147	VE-30030692	FERRITE NET	120R/100MHz 150mA	R285	VE-30015578	RESISTOR	1/16W 2.2R J
R149	VE-30012510	RESISTOR	1/16W 100R J	R286	VE-30012510	RESISTOR	1/16W 100R J
R152	VE-30012510	RESISTOR	1/16W 100R J	R287	VE-30012641	RESISTOR	1/16W 10K J
R153	VE-30012510	RESISTOR	1/16W 100R J	R288	VE-30015578	RESISTOR	1/16W 2.2R J
R154	VE-30012510	RESISTOR	1/16W 100R J	R289	VE-30012641	RESISTOR	1/16W 10K J
R155	VE-30012510	RESISTOR	1/16W 100R J	R290	VE-30012669	RESISTOR	1/16W 22K J

△Ref No.	Part No.	Part Name	Description Local	△Ref No.	Part No.	Part Name	Description Local
R291	VE-30012657	RESISTOR	1/16W 1K J	R508	VE-30012641	RESISTOR	1/16W 10K J
R292	VE-30012510	RESISTOR	1/16W 100R J	R509	VE-30012509	RESISTOR	1/16W 100K J
R293	VE-30012510	RESISTOR	1/16W 100R J	R510	VE-30012705	RESISTOR	1/16W 6.8K J
R294	VE-30012696	RESISTOR	1/16W 47K J	R511	VE-30012641	RESISTOR	1/16W 10K J
R297	VE-30012641	RESISTOR	1/16W 10K J	R512	VE-30012669	RESISTOR	1/16W 22K J
R298	VE-30012641	RESISTOR	1/16W 10K J	R513	VE-30012641	RESISTOR	1/16W 10K J
R310	VE-30012668	RESISTOR	1/16W 220R J	R514	VE-30012692	RESISTOR	1/16W 4.7K J
R311	VE-30012668	RESISTOR	1/16W 220R J	R550	VE-30012685	RESISTOR	1/16W 33K J
R400	VE-30000797	RESISTOR	1/10W 75R J	R551	VE-30012685	RESISTOR	1/16W 33K J
R401	VE-30000797	RESISTOR	1/10W 75R J	L100	VE-30001996	FIXED COIL	22uH Q40 K
R402	VE-30000797	RESISTOR	1/10W 75R J	L100	VE-30001971	FERRITE	600R/100MHz 200mA
R403	VE-30012510	RESISTOR	1/16W 100R J	L101	VE-30001996	FIXED COIL	22uH Q40 K
R404	VE-30012510	RESISTOR	1/16W 100R J	L101	VE-30001971	FERRITE	600R/100MHz 200mA
R405	VE-30012510	RESISTOR	1/16W 100R J	L102	VE-30001979	FIXED COIL	1uH Q45 M-A
R406	VE-30000469	RESISTOR	1/10W 1K J	L102	VE-30001971	FERRITE	600R/100MHz 200mA
R407	VE-30000469	RESISTOR	1/10W 1K J	L103	VE-30006712	FERRITE BEAD	3.5X4.7X0.8
R413	VE-30000797	RESISTOR	1/10W 75R J	L103	VE-30001971	FERRITE	600R/100MHz 200mA
R414	VE-30012677	RESISTOR	1/16W 3.3K J	L104	VE-30001971	FERRITE	600R/100MHz 200mA
R415	VE-30012668	RESISTOR	1/16W 220R J	L177	VE-30006712	FERRITE BEAD	3.5X4.7X0.8
R416	VE-30000797	RESISTOR	1/10W 75R J	L179	VE-30001971	FERRITE	600R/100MHz 200mA
R417	VE-30012677	RESISTOR	1/16W 3.3K J	L180	VE-30001971	FERRITE	600R/100MHz 200mA
R418	VE-30012668	RESISTOR	1/16W 220R J	L181	VE-30020531	FERRITE	220R/100MHz 2A
R419	VE-30000797	RESISTOR	1/10W 75R J	L182	VE-30001971	FERRITE	600R/100MHz 200mA
R422	VE-30000469	RESISTOR	1/10W 1K J	L183	VE-30020531	FERRITE	220R/100MHz 2A
R423	VE-30012510	RESISTOR	1/16W 100R J	L201	VE-30001971	FERRITE	600R/100MHz 200mA
R424	VE-30012510	RESISTOR	1/16W 100R J	L203	VE-30001971	FERRITE	600R/100MHz 200mA
R425	VE-30012510	RESISTOR	1/16W 100R J	L204	VE-30002002	FIXED COIL	47uH Q60 K
R429	VE-30000797	RESISTOR	1/10W 75R J	L206	VE-30001971	FERRITE	600R/100MHz 200mA
R430	VE-30000469	RESISTOR	1/10W 1K J	L207	VE-30002002	FIXED COIL	47uH Q60 K
R431	VE-30000797	RESISTOR	1/10W 75R J	L208	VE-30001971	FERRITE	600R/100MHz 200mA
R432	VE-30000475	RESISTOR	1/10W 10K J	L209	VE-30001971	FERRITE	600R/100MHz 200mA
R433	VE-30012677	RESISTOR	1/16W 3.3K J	L210	VE-30001971	FERRITE	600R/100MHz 200mA
R434	VE-30000797	RESISTOR	1/10W 75R J	L211	VE-30001971	FERRITE	600R/100MHz 200mA
R435	VE-30000797	RESISTOR	1/10W 75R J	L212	VE-30001971	FERRITE	600R/100MHz 200mA
R436	VE-30012510	RESISTOR	1/16W 100R J	L213	VE-30001971	FERRITE	600R/100MHz 200mA
R437	VE-30012659	RESISTOR	1/16W 2.2K J	L214	VE-30001971	FERRITE	600R/100MHz 200mA
R438	VE-30012707	RESISTOR	1/16W 680R J	L215	VE-30001971	FERRITE	600R/100MHz 200mA
R439	VE-30012510	RESISTOR	1/16W 100R J	L216	VE-30001971	FERRITE	600R/100MHz 200mA
R440	VE-30012648	RESISTOR	1/16W 150K J	L217	VE-30001971	FERRITE	600R/100MHz 200mA
R441	VE-30012641	RESISTOR	1/16W 10K J	L218	VE-30001971	FERRITE	600R/100MHz 200mA
R442	VE-30012641	RESISTOR	1/16W 10K J	L219	VE-30001971	FERRITE	600R/100MHz 200mA
R443	VE-30000797	RESISTOR	1/10W 75R J	L220	VE-30001971	FERRITE	600R/100MHz 200mA
R444	VE-30000797	RESISTOR	1/10W 75R J	L221	VE-30029701	FIXED COIL	0.56uH K
R445	VE-30012657	RESISTOR	1/16W 1K J	L411	VE-30001971	FERRITE	600R/100MHz 200mA
R446	VE-30012674	RESISTOR	1/16W 27K J	L412	VE-30001971	FERRITE	600R/100MHz 200mA
R447	VE-30012657	RESISTOR	1/16W 1K J	L413	VE-30001971	FERRITE	600R/100MHz 200mA
R448	VE-30012692	RESISTOR	1/16W 4.7K J	L414	VE-30001971	FERRITE	600R/100MHz 200mA
R449	VE-30012641	RESISTOR	1/16W 10K J	L415	VE-30001971	FERRITE	600R/100MHz 200mA
R450	VE-30012692	RESISTOR	1/16W 4.7K J	L422	VE-30016162	FERRITE	1K/100MHz 200mA
R451	VE-30012641	RESISTOR	1/16W 10K J	L423	VE-30016162	FERRITE	1K/100MHz 200mA
R452	VE-30012692	RESISTOR	1/16W 4.7K J	L424	VE-30001971	FERRITE	600R/100MHz 200mA
R453	VE-30012641	RESISTOR	1/16W 10K J	L500	VE-30020531	FERRITE	220R/100MHz 2A
R454	VE-30012982	RESISTOR	1/16W 10R J	L501	VE-30020531	FERRITE	220R/100MHz 2A
R455	VE-30012510	RESISTOR	1/16W 100R J	L502	VE-30020531	FERRITE	220R/100MHz 2A
R459	VE-30012713	RESISTOR	1/16W 75R J	L503	VE-30020531	FERRITE	220R/100MHz 2A
R460	VE-30012713	RESISTOR	1/16W 75R J	L504	VE-30020531	FERRITE	220R/100MHz 2A
R461	VE-30012713	RESISTOR	1/16W 75R J	L505	VE-30006712	FERRITE BEAD	3.5X4.7X0.8
R462	VE-30012705	RESISTOR	1/16W 6.8K J	L506	VE-30019475	FIXED COIL	47uH 2A RAD SH 14X16
R463	VE-30012713	RESISTOR	1/16W 75R J	L507	VE-30020531	FERRITE	220R/100MHz 2A
R464	VE-30012713	RESISTOR	1/16W 75R J	L508	VE-30020531	FERRITE	220R/100MHz 2A
R465	VE-30012644	RESISTOR	1/16W 12K J	L509	VE-30011450	FIXED COIL	22uH 5.4A 11.5*15.5
R466	VE-30012644	RESISTOR	1/16W 12K J	△F501	VE-30035282	FUSE	5A/32VDC
R467	VE-30012713	RESISTOR	1/16W 75R J	△F502	VE-30028331	FUSE	7A/32VDC 1206
R468	VE-30012705	RESISTOR	1/16W 6.8K J	JK100	VE-30031077	HEADPHONE JACK	HP01/2/3/4/5/6
R469	VE-30012705	RESISTOR	1/16W 6.8K J	JK101	VE-30032639	RCA JACK	1P YELLOW 28 FAV
R470	VE-30012685	RESISTOR	1/16W 33K J	JK102	VE-30032636	RCA JACK	1P WHITE 28 FAV
R471	VE-30012685	RESISTOR	1/16W 33K J	JK103	VE-30032638	RCA JACK	1P RED 28 FAV
R472	VE-30012713	RESISTOR	1/16W 75R J	JK104	VE-30001895	JACK	4P DIN TYPE FOR SVHS
R473	VE-30012648	RESISTOR	1/16W 150K J	JK406	VE-30001902	HEADPHONE JACK	STEREO WO/SW
R474	VE-30012689	RESISTOR	1/16W 39K J	JK500	VE-30027932	DC POWER SOCKET 7.5A	
R475	VE-30012641	RESISTOR	1/16W 10K J	PL1	VE-30037369	CNAS 10P-5-4/370 FLT W/C UL2468AWG24	
R476	VE-30012641	RESISTOR	1/16W 10K J	PL2	VE-30039003	CNAS 5P-6/430 FLT W/C UL2468AWG24	
R477	VE-30012713	RESISTOR	1/16W 75R J	PL100	VE-30001838	CONN HEADER	3P 2.5MM TOP YELLOW SD
R478	VE-30012689	RESISTOR	1/16W 39K J	PL100	VE-30033112	CONN HEADER	4P 2.5MM TOP WHT SD
R479	VE-30012692	RESISTOR	1/16W 4.7K J	PL101	VE-30030582	CONN MALE	6P MOLEX VERTICAL
R480	VE-30012696	RESISTOR	1/16W 47K J	PL102	VE-30030582	CONN MALE	6P MOLEX VERTICAL
R481	VE-30012648	RESISTOR	1/16W 150K J	PL175	VE-30032885	CONN HEADER	10P 2.54MM TOP WHT
R485	VE-30012641	RESISTOR	1/16W 10K J	PL176	VE-30018047	CONN HEADER	11P 1.25MM SIDE
R487	VE-30000464	RESISTOR	1/10W 100R J	PL179	VE-30018073	CONN HEA.	20P 1.25MM SIDE WHT SMT
R488	VE-30000464	RESISTOR	1/10W 100R J	PL201	VE-30032635	CONN HEADER	6P 2.5MM TOP WHT SD
R489	VE-30000464	RESISTOR	1/10W 100R J	PL203	VE-30031582	CONN HEADER	5P 2.5MM TOP WHT SD
R495	VE-30012668	RESISTOR	1/16W 220R J	PL400	VE-30032051	D SOCKET	D-SUB 15P FOR TFT
R496	VE-30012669	RESISTOR	1/16W 22K J	PL401	VE-30018089	SOCET SCART BLACK TFT	
R503	VE-30012641	RESISTOR	1/16W 10K J	PL402	VE-30031051	CONN HEADER	2P 2.5MM TOP WHT SD
R505	VE-30012669	RESISTOR	1/16W 22K J	PL403	VE-30031054	CONN HEADER	2P 2.5MM TOP BLUE SD
R506	VE-30012669	RESISTOR	1/16W 22K J				
R507	VE-30012648	RESISTOR	1/16W 150K J				

△Ref No.	Part No.	Part Name	Description Local
PL405	VE-30030582	CONN MALE	6P MOLEX VERTICAL
PL406	VE-30030582	CONN MALE	6P MOLEX VERTICAL
PL407	VE-30001838	CONN HEADER	3P 2.5MM TOP YELLOW SD
PL501	VE-30010030	PIN HEADER (1X2)	
S187	VE-30041653	FERRITE	60R/100MHz 300mA
S188	VE-30041653	FERRITE	60R/100MHz 300mA
S189	VE-30041653	FERRITE	60R/100MHz 300mA
S190	VE-30041653	FERRITE	60R/100MHz 300mA
S191	VE-30041653	FERRITE	60R/100MHz 300mA
S192	VE-30041653	FERRITE	60R/100MHz 300mA
S193	VE-30041653	FERRITE	60R/100MHz 300mA
S194	VE-30041653	FERRITE	60R/100MHz 300mA
S195	VE-30041653	FERRITE	60R/100MHz 300mA
S196	VE-30041653	FERRITE	60R/100MHz 300mA
S416	VE-30000469	RESISTOR	1/10W 1K J
S417	VE-30000469	RESISTOR	1/10W 1K J
SW5	VE-30032684	TACT SWITCH	
TU200	VE-30029452	TUNER WSP (PLL)	38.9 HOR. IEC-L
X100	VE-30017946	CLYSTAL	14.318 MHZ
X201	VE-30001741	CLYSTAL	24.576 20p HC49U
Z200	VE-30012545	SAW FILTER	K9656M
Z201	VE-30001692	SAW FILTER	OFWK3953M

PACKING



PACKING PARTS LIST

△	Ref.No.	Part No.	Part Name	Description	Local
	1	VE-50069373	CARTON BOX		LT-15B60SJ
	1	VE-50069196	CARTON BOX		LT-15B60SW
	2	VE-20176204	SNOW BOX (FRONT)		
	3	VE-20176203	SNOW BOX (BACK)		
	4	VE-30039453	REMOTE CONTROL UNIT	(RM-C1861)	
△	5	VE-30034459	AC ADAPTOR	DC12V 4A	
△	6	VE-30002376	POWER CORD	For AC ADAPTOR	
△	7	VE-50069375	INST BOOK	[ENG]	LT-15B60SJ
△	7	VE-50069198	INST BOOK	[ENG/GER/FRA/ITA]	LT-15B60SW
△	7	VE-50069199	INST BOOK	[SPA/POR/DUT]	LT-15B60SJ
	8	VE-50069376	WARRANTY CARD		LT-15B60SW
	8	VE-50069200	WARRANTY CARD		
	9	-----	BATTERY	AA/R06 (x2)	
	10	VE-50018337	POLY BAG		